DNRP
KingStat Improving Government Service and Performance 2010 Report

COMMUNITY AND ENVIRONMENTAL INDICATORS | PERFORMANCE MEASURES

Aquatic Environment | Land & Resources | Health & Safety | Resource Consumption | Atmosphere | Environment | People & Communities | Fiscal and Economic

Welcome to KingStat 2010

August 15, 2011

Christie True
Director for DNRP

Welcome to the 2011 performance report of the King County Department of Natural Resources and Parks (DNRP). Our department has been using performance information for many years to improve service delivery, get feedback on customer priorities, and improve accountability with the elected leadership, our stakeholders, and the public.

We produce this report annually for several purposes, including:

- For Elected Officials in King County, the report helps us remain accountable by highlighting achievements and identifying areas to improve;
- For DNRP Leadership, this report reveals what strategies are succeeding and where to adjust methods and/or resources to improve outcomes;
- For our many public, private, and community-based stakeholders, this report provides a snapshot of our current priorities, progress, and provides a basis for offering feedback; and
- For the 1600 DNRP employees, this report articulates goals, objectives, targets, and guidance on implementation

The King County Department of Natural Resources and Parks is committed to providing King County residents with outstanding services to make this a great place to live, work, and enjoy .

Here are some of the highlights from 2010

• The Maury Island Open Space Acquisition agreement secures the largest undeveloped stretch of shoreline in Puget Sound, and is a critical step toward recovering salmon .

• The final phase of construction was approved for Bow Lake Transfer Station, and this facility is on track to open in 2012 . Bow Lake is the Solid Waste Division's busiest facility, and this work will not only improve efficiency, but accommodate future growth .

• We not only marked 50 years of flood warning services, but helped secure federal funds for Howard Hanson Dam repairs and led a nationally- recognized Green River Valley public awareness campaign . These efforts greatly reduce the flood risk for thousands of residents and businesses .

• The Parks and Recreation Division's Weyerhaeuser King County Aquatic Center was selected to host the USA Diving Trials for the 2012 Olympics, while the nationally-acclaimed Duthie Hill Mountain Bike Park was opened through a community partnership grant .

• DNRP helped develop King County's new energy plan that sets goals for achieving energy efficiencies while cutting greenhouse gas emissions .

• Brightwater treatment plant construction is now 90 percent complete and on track to begin wastewater treatment in 2011 . Eleven of the 13 miles of conveyance tunnels have been completed and work is well under way to complete the remaining tunnel

DNRP staff supported efforts to restore weak runs of Lake Sammamish kokanee by capturing adult fish to spawn in a hatchery, then releasing the offspring in their home streams .

• We supported completion of the North Wind's Weir estuary restoration project in Tukwila, one of the largest restoration projects ever completed on the Duwamish River .

Flash

Visual representation of DNRP's KingStat Program

DNRP Vision Mission and Goals

DNRP Equity

King County AIMs High

DNRP Budget And Organization Chart

Previous Reports

2009 KingStat - 5.6 MB PDF

2008 KingStat - 5.8 MB PDF

2007 KingStat - 5.8 MB PDF

2006 KingStat - 4.7 MB PDF

2005 Measuring for Results - 7meg PDF

2004 Measuring for Results - 4.4meg PDF

2003 Measuring for Results - 4.3meg PDF

News

King County performance reporting

• DNRP helped secure passage of a mercury-containing fluorescent lamp product stewardship law in the Washington Legislature . This has been a top priority of the Local Hazardous Waste Management Program in King County .

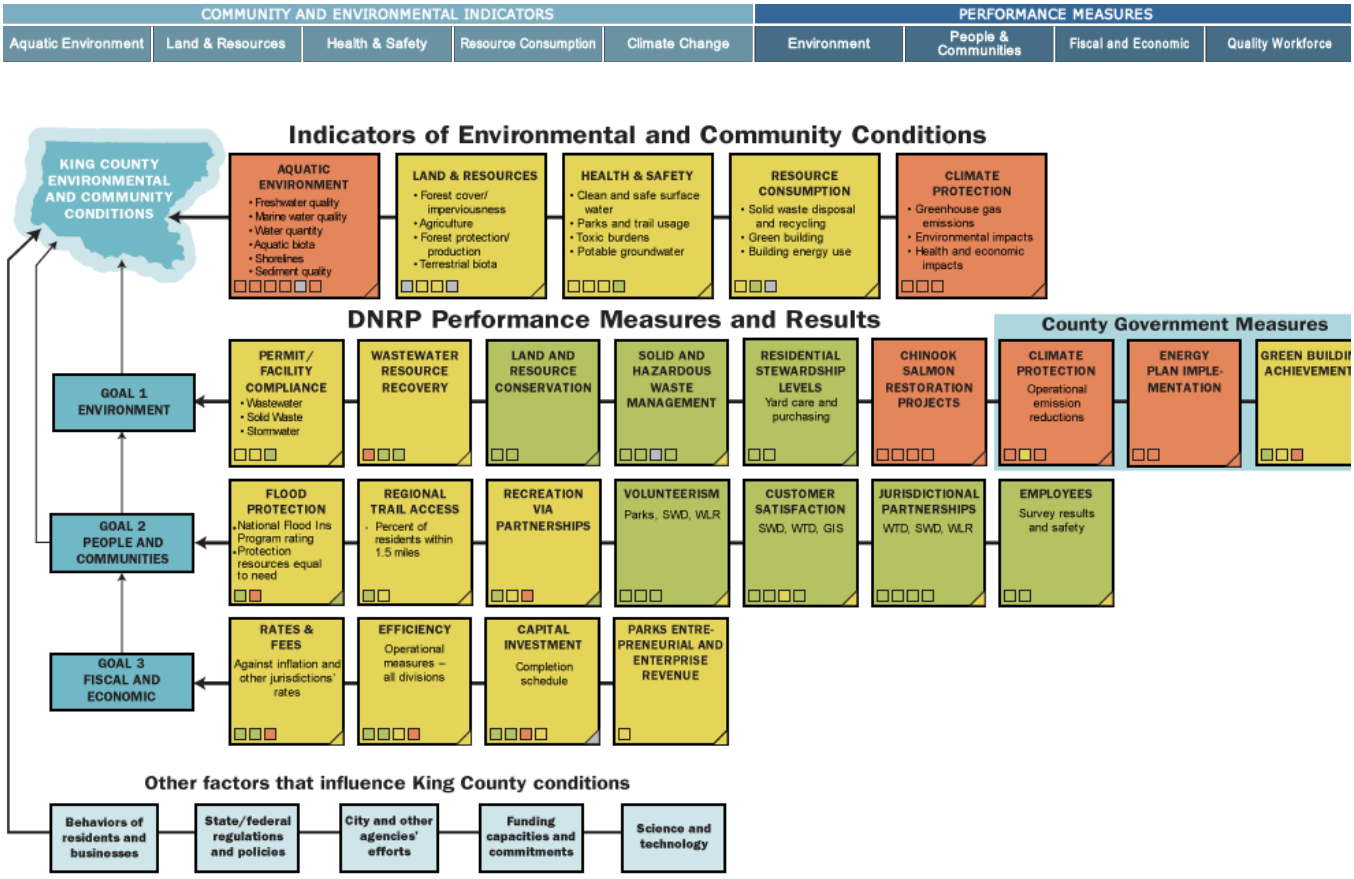
• The Wastewater Treatment Division concluded a 10 year Productivity Initiative that saved ratepayers more than $72 million . These are just some of the highlights from the past year . The work we do is done with a commitment to sound financial practices with an eye toward careful stewardship of the public's resources .

I want to thank Executive Dow Constantine and the King County Council for their dedication and leadership

Christie True
Director for DNRP

wins national awards

HOW ARE WE DOING?



Indicators Legend
- Meets or exceeds standard, goal, or improved from prior years
- Approaching standard goal, or steady with prior years
- Below standard, goal, or decline from prior years
- Insufficient data

Performance Measures Legend
- Meets or exceeds target
- Approaches target (less than 10% away from target)
- Needs improvement (more than 10% away from target)
- Insufficient data

DNRP Goals

Environment Minimize waste and emissions, maximize resource re-use and recovery, and protect and restore habitats, ecological functions and aquatic conditions.

People and Communities Protect and improve human health, safety, and wellness – minimize hazards (including toxic exposures and flood risk), maximize opportunities for community building and fitness, build internal capacity for excellence in service delivery.

Fiscal Responsibility and Economic Vitality Support King County's economic development goals and ensure ratepayer value through effective, efficient and equitable program implementation.

General Legend

INDICATOR OR MEASURE
Number and rating of components
2009 rating

Acronyms

GIS	King County GIS (Geographic Information System) Center
SWD	Solid Waste Division
WLR	Water & Land Resources Division
WTD	Wastewater Treatment Division

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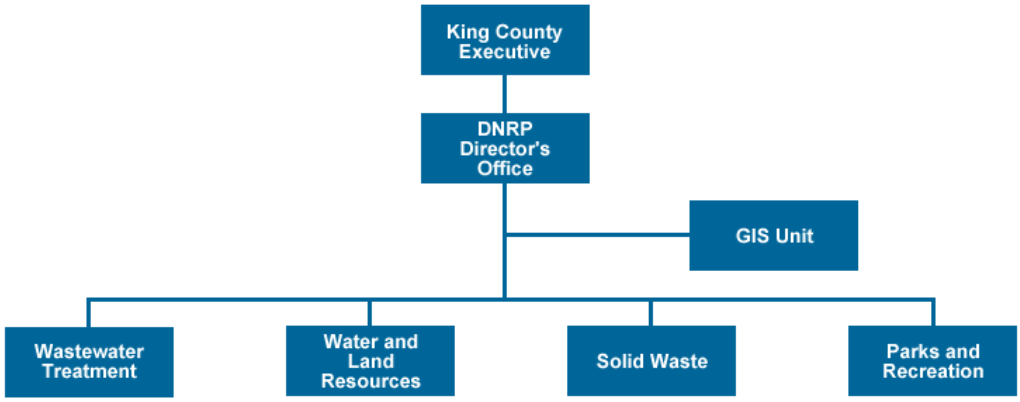
DNRP BUDGET AND ORGANIZATION CHART

COMMUNITY AND ENVIRONMENTAL INDICATORS					PERFORMANCE MEASURES		
Aquatic Environment	Land & Resources	Health & Safety	Resource Consumption	Atmosphere	Environment	People & Communities	Fiscal and Economic



Summary budget by organization

	DNRP	DO	GIS	WTD	SWD	WLRD	Parks
2008	$477.6M (O) $384.4M (C)	$5.2M (O)	$4.4M (O)	$273.5M (O) $233.0M (C)	$59.7M (O) $45.9M (C)	$106.4M (O) $79.0M (C)	$28.4M (O) $26.5M (C)
2009	$484M (O) $333.7M (C)	$5.3M (O)	$4.4M (O)	$280.8M (O) $167.6M (C)	$57.5M (O) $69.4M (C)	$107.2M (O) $75.2M (C)	$28.8M (O) $21.5M (C)

(O) = Operating
(C) = Capital

DNRP EQUITY AND SOCIAL JUSTICE PROGRAM AND ACTIVITIES

Executive Dow Constantine and the King County Council have worked together to establish Ordinance 16948 which formalized the "Fair and Just" principle of the King County Strategic Plan. DNRP is an active ESJ participant, with a variety of programs and services that are reviewed for their distributional equity.

More and more, we are recognizing that our prosperity and quality of life depend upon the ability of everyone who lives, works and plays in King County to benefit. DNRP has an important role in advancing this work.

Here are several DNRP examples:

- Parks now considers geography when improving existing facilities or expanding its system, because the proximity to exercise and recreational opportunities is linked to community health. Recent examples include extensive improvements to parks in Skyway and White Center, increased support to the teen program in White Center, and continued regional support for the Lake-to-Sound Trail — a 16-mile-long trail that would link five cities and four regional trails in south King County.
- WTD has established a standing contract for phone-in translation services that give field personnel access to a variety of languages.
- SWD provides technical assistance and grants to incorporate green building practices into affordable housing projects, and the division is advancing policies to provide expanded recycling to residents of multi-family housing.
- WLRD worked with the King County Flood Control District and the DNRP Director's Office to produce emergency preparedness public service announcements in 24 languages.
- Human resources advertises employment announcements via social media to help attract and recruit at all generational levels. Hiring requirements have also been adjusted to eliminate potential barriers, such as a college degree or driver's license, when not necessary for the job.

Going forward, DNRP will focus on improvements to:

- Engaging a broad array of stakeholders,
- Examining the distribution of both benefits and burdens of service delivery, and
- Considering and adjusting our decisions and actions based on how they impact future generations.

Thank you for helping DNRP lead in equity and social justice in King County. If you have follow-up questions, please contact:

- **Richard Gelb, DNRP ESJ lead**
- **Cristina Gonzalez, Parks ESJ lead**
- **Larry Jones, WLRD ESJ lead**
- **Rachael Dillman, WTD ESJ lead**
- **Rodney Proctor, SWD ESJ lead**

Additional Resources

- **DNRP 2011 Equity and Social Justice Accomplishments Narrative summary** - 64KB PDF
- **Equity and Social Justice 2011 Work Plan Summary for DNRP** - 92KB PDF
- **King County Equity program**

DNRP Equity Assessment Description

Background

In support of the King County Equity and Social Justice Initiative (**http://www.kingcounty.gov/equity**), DNRP recently carried out an equity assessment for its major lines of business. The assessment utilized Geographic Information Systems (GIS) to map how selected services and facilities relate to basic demographic conditions.

This comparison helps identify and address the relative fairness in distribution of benefits and burdens across our service areas, with the goal of reducing racial or income-based inequity associated with facilities and programs.

Having this basic, screening-level understanding of how our service portfolio impacts residents of various demographic backgrounds provides a useful perspective for more detailed assessments, if needed. When considering capital improvements, outreach or planning decisions, these maps help assess the potential impacts of new actions as they relate to current service levels and spatial demographics.

Using GIS maps, DNRP has identified relationships between basic demographic characteristics and selected outcomes, including:

- The proximity of residents of various race and income levels to potentially undesirable facilities (e.g. transfer stations, pump stations);
- The proximity of residents of various race and income levels to desirable facilities (e.g. regional trails) or services; and
- The degree that residents of various race and income levels utilize services and/or are impacted by community conditions

Approach

DNRP's method for assessing the equity of facility and service distribution includes these steps:

1. Map King County census block groups using six categories of race and income
2. Plot selected DNRP facilities, service levels, and/or impact areas
3. Create facility or program "catchment areas" by buffering appropriate distance from the facility or program location to include the affected areas
4. Identify resident demographics in catchment areas
5. Benefit assessment — Determine demographics of block groups living closer to selected desirable facilities or those receiving higher DNRP services levels
6. Burden assessment — Determine demographics of block groups living closer to selected facilities or receiving lower levels of DNRP services
7. Compare demographics of those in "catchment areas" with countywide averages
8. Summarize and map the findings
9. Identify if degree of disproportionality is significant enough to warrant a program response

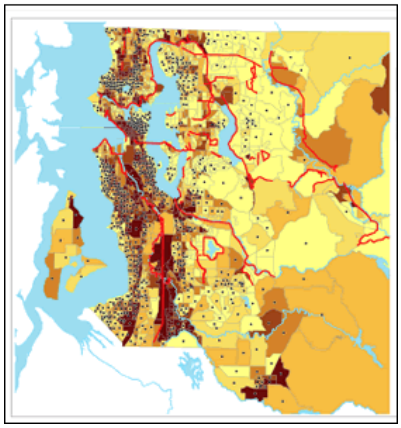
Scope of Initial Assessment

The following topics have been mapped or are proposed for mapping in early '08:

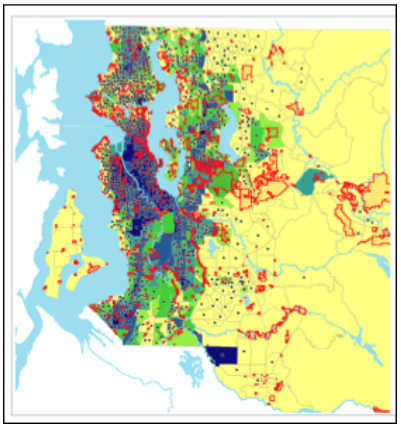
1. Parks and Recreation Division—regional trail access, open space and park distribution.
2. Wastewater Treatment Division—location of wastewater conveyance facilities and treatment plants.
3. Solid Waste Division—locations of transfer stations, WasteMobile stops, Take-It-Back Network participants
4. Water and Land Resources Division—locations of drainage complaints and technical assist visits

Below are maps and charts that help present the findings from this effort. Please contact **richard.gelb@kingcounty.gov** with follow-up questions on methods or results.

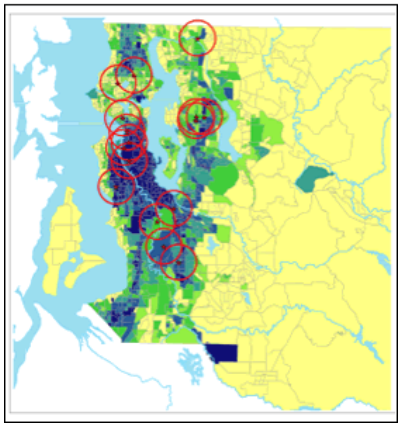
Income Demographics and Distance to Regional Trails in King County



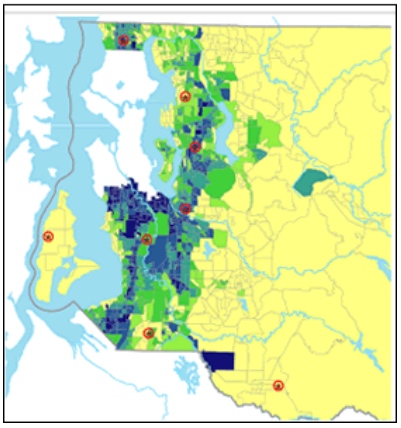
Minority Demographics and distance to Developed Parks in King County



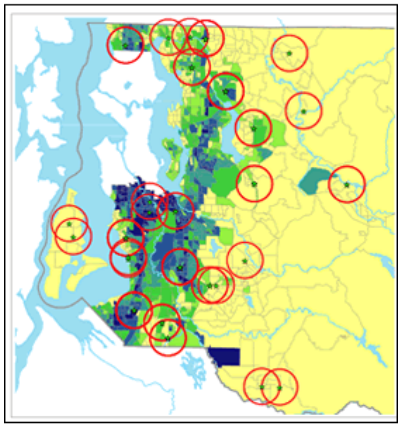
Minority Demographics and 2 Mile Buffer from Take It Back Store Location



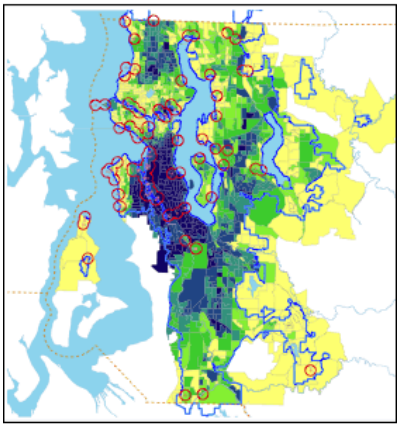
Minority Demographics and 1/2 Mile Buffer from Transfer Station



Minority Demographics and 2 Mile Buffer from Wastemobile Stops

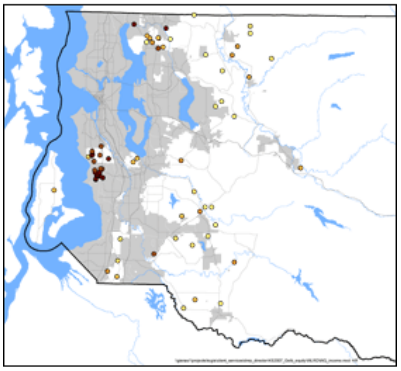


Minority Demographics and King County Wastewater Facility Locations



Income Demographics and 2 Mile Buffer from Take It Back Store Location

Water Quality Audits By Income



DNRP VISION MISSION AND GOALS

COMMUNITY AND ENVIRONMENTAL INDICATORS					PERFORMANCE MEASURES		
Aquatic Environment	Land & Resources	Health & Safety	Resource Consumption	Atmosphere	Environment	People & Communities	Fiscal and Economic

DNRP - Vision, Mission and Goals and Performance Management Principle

Vision

Sustainable and livable communities — Clean and healthy natural environment.

Mission

Foster environmental stewardship and strengthen communities by providing regional parks, protecting the region's water, air, land and natural habitats, and reducing, safely disposing of and creating resources from wastewater and solid waste.

Goals:

1. **Environment:** Minimize waste and emissions, maximize resource re-use and recovery, and protect and restore habitats, ecological functions and aquatic conditions.

2. **People and Communities:** Protect and improve human health, safety, and wellness — minimize hazards (including toxic exposures and flood risk), maximize opportunities for community building and fitness, build internal capacity for excellence in service delivery.

3. **Fiscal Responsibility and Economic Vitality:** Support King County's economic development goals and ensure ratepayer value through effective, efficient and equitable program implementation.

Performance management guiding principle:

Effectiveness, efficiency, and equity measures across 3 domains (environment, people/community, and fiscal/economic) that are cohesive, aligned, and integrated throughout the organization.

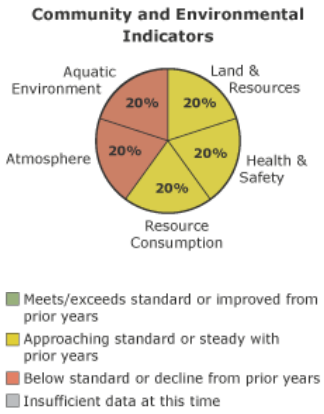
COMMUNITY AND ENVIRONMENTAL INDICATORS

DNRP 2010 COMMUNITY AND ENVIRONMENTAL INDICATORS

In simplest terms, indicators are measures of environmental conditions, while performance measures show how DNRP is doing at improving these conditions.

In practice, however, there is not always a clear line between measures that are environmental indicators and those that are measuring our agency's performance.

DNRP distinguishes between environmental indicators and performance measures based on the degree of our influence — measures that have many contributing factors are included as indicators, while measures that are strongly influenced by DNRP policies, programs, and practices are considered performance measures.



Indicators

DNRP KingStat environmental indicators are summarized in five groups:

- **Aquatic Environment**
- **Land & Resources**
- **Health & Safety**
- **Resource Consumption**
- **Atmosphere**

The pie chart at the top of each indicator page provides a high-level summary of that indicator's condition. Readers will find more detailed information on environmental conditions by reviewing the various component measures, while information on how the data is collected can be found at the bottom of the page in "Technical Notes."

Information about these environmental indicators use a simple red/yellow/green/gray designation, where:

- Green signifies meeting or exceeding an adopted standard, a stated goal, or improved from prior years;
- Yellow signifies approaching to within 10 percent of an adopted standard, stated goal or has remained steady with prior years;
- Red signifies being below the standard or goal, or declining from prior years; and
- Gray signifies insufficient data at this time.

WHAT CAN YOU DO?

At Home

Puget Sound Shoreline Stewardship Guidebook

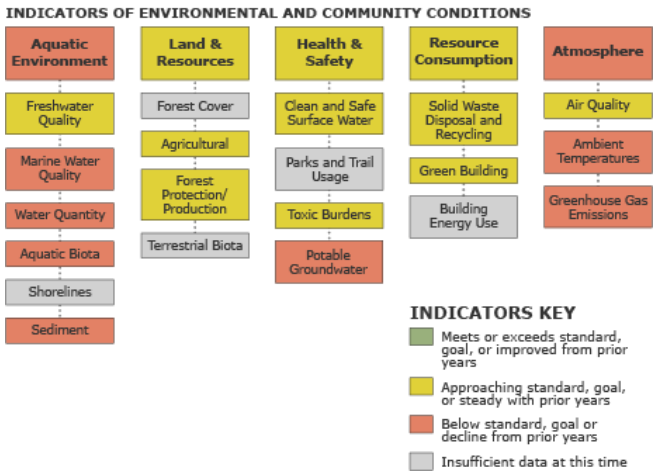
Embrace Natural Yard Care

Related Information

DNRP Budget And Organization Chart

King County Ecological Lands

DNRP 2010 INDICATORS



Download PDF version of KingStat Indicators site-map 68Kb

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We welcome your feedback and suggestions to improve this site, such as:

- Other reliable environmental data sources for King County
- Adjustments to the weightings for indicators and performance measures
- Mistakes to fix

Share your thoughts by sending an e-mail to Richard Gelb, DNRP Performance Measurement Lead, at **richard.gelb@kingcounty.gov** so your input can be considered for subsequent updates.

INDICATORS

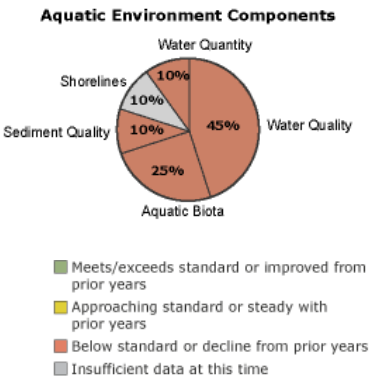
AQUATIC ENVIRONMENT

2010 Rating:

Indicator

King County's Aquatic Environment Index includes information about the conditions of water quality, aquatic biota, shorelines, water quantity, and sediment quality. Our weighting system for overall aquatic environment condition includes:

- 45 percent water quality
- 25 percent aquatic biota
- 10 percent water quantity
- 10 percent shorelines, and
- 10 percent sediment quality



Status

Overall, conditions are below standard, with a few areas of lesser concern.

Influencing factors

Over the past two centuries, increased population and development have substantially altered King County's landscape. Less forests and natural land cover increase the need for engineered stormwater controls and reduce the amount of habitat for animal and plant species. Development and deteriorating water quality impact wildlife habitat — particularly the amounts of hard or paved surfaces, loss of tree cover and other changes to natural environments. Phosphorus from blended stormwater and wastewater that bypasses the treatment process during significant storm events, failing septic systems, pet wastes and water bird droppings reduce dissolved oxygen levels and increase water temperatures. Marine habitat quality is reduced by non-point source pollution, contaminated sediments and the high percentage of shoreline that has been armored with bulkheads and other structures.

What you can do

- Reduce your driving and reliance on cars -- drippings and exhaust from vehicles and run-off from roads and parking lots are primary contributors of water quality declines.
- Properly dispose of harmful chemicals, including unused pharmaceuticals and latex paints, instead of pouring them down the drain or allowing them to run off on the ground.
- Minimize the use of fertilizers and pesticides by practicing natural yard care.
- Wash your car on the grass or gravel instead of on the street or driveway, or take it to a car wash.
- Properly dispose of or manage pet and livestock wastes.
- Consider alternatives to bulkheads and other artificial barriers to marine shorelines.
- Plant trees and reduce impervious surfaces by using pervious pavers in drive and walkways.
- Encourage your local city or town to make tree protection regulations stronger.
- Contact your elected officials and express how important wildlife protections are to you—including salmon restoration.

More information about King County's Aquatic Environment Index is available by continuing to the following links for these measures:

More information about King County's Freshwater and Marine Water Quality is available by continuing below for these

WHAT CAN YOU DO?

At Home

Puget Sound Shoreline Stewardship Guidebook

Shoreline Practices for a Healthy Lake, River or Stream

Duwamish River Cleanup Coalition

At Work

Reduce your runoff, get a fee discount

Learn Best Practices to reduce Stormwater Pollution

Understand Industrial Waste Discharge Limits

Related Information

DNRP Budget And Organization Chart

Puget Sound Marine Topics

Puget Sound Watershed

Vashon Island Environmental Information

Puget Sound Partnership Recommendations

EPA: Lower Duwamish Watershed

Scientists Concerned For Puget Sound

A Comprehensive Assessment of the

measures:

- **Water Quality - Freshwater Environment**
- **Water Quality - Marine Environment**
- **Aquatic Biota**
- **Water Quantity**
- **Shorelines**
- **Sediment Quality**

Back to top

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Central Puget Sound Nearshore Ecosystem

INDICATORS

FRESHWATER WATER QUALITY

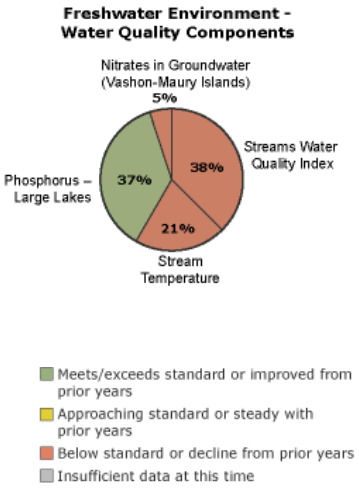
2010 Rating: ⇔

Freshwater Environment

About this indicator: King County's Freshwater Water Quality Index is derived from two main groupings of results describing the conditions of lakes and rivers & streams. Wetland conditions do not factor into the index at this time because of inadequate data. Due to the budget cuts, several indicators in this index have been removed from data collection in 2010 and possibly future years.

Status: Overall below standard, though with some areas of lesser concern.

Influencing factors: The impacts of development, landowner practices in areas close to the shoreline and pollutants are the dominant drivers determining the health of freshwater bodies in King County. Less forest cover and increases in impervious surfaces result in higher stream temperatures and more urban runoff. Phosphorus from blended stormwater and wastewater that bypasses the treatment process during significant storm events, failing septic systems, pet wastes and water bird droppings reduce dissolved oxygen levels and increase water temperatures.



What you can do:

- Properly dispose of unused pharmaceuticals, harmful chemicals and paints, instead of pouring them down the drain or allowing them to run off on the ground.
- Minimize the use of fertilizers and pesticides by practicing natural yard care.
- Wash your car on the grass or gravel instead of on the street or driveway, or take it to a car wash.
- Properly dispose of or manage pet and livestock wastes.

More information about King County's Freshwater water quality is available by continuing below for these measures:

- **Phosphorus in Large Lakes**
- **Stream Temperature**
- **Streams Water Quality Index**
- **Nitrates in Groundwater on Vashon-Maury Islands**

Phosphorus in Large Lakes

WHAT CAN YOU DO?

At Home

Puget Sound Shoreline Stewardship Guidebook

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Related Information

Puget Sound Marine Topics

Puget Sound Watershed

Vashon Island Environmental Information

King County marine research vessel "Liberty"

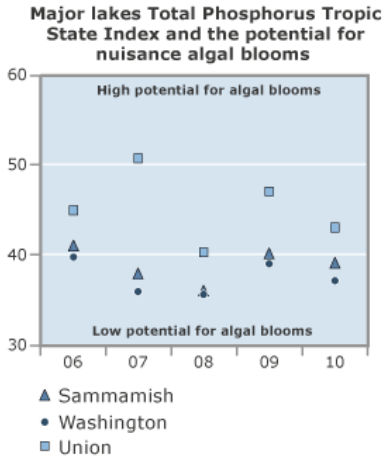
Hood Canal Marine Life Struggling for Oxygen

Lower Duwamish Watershed

Marine Benthic Invertebrate Communities Near King County Wastewater Outfalls

Water and Land Resources Division

About this measure: The people of King County have made significant investments in water quality improvement and protection to lakes Washington, Sammamish and Union beginning with the diversion of wastewater effluent out of Lake Washington and Lake Sammamish in 1968.



Water quality improvements continue with efforts to:

- Reduce the discharge of combined sewer overflows
- Improve King County's wastewater treatment system (including construction of Brightwater treatment facility)
- Expand effluent reuse programs

These gains in water quality are constantly threatened by increasing amounts of phosphorus entering the watersheds as a result of increased development.

Status: Lake water quality results vary annually, depending on the climate effects and biological interactions that combine to create unique conditions in each lake annually. For example, the 1994-2010 results for both Lakes Sammamish and Washington show phosphorus concentrations fluctuated between low to moderate productivity from year to year, indicating water quality varies from good to moderate with low potential for nuisance algal blooms. Lake Union typically has phosphorus concentrations within the moderate water quality range, with the exception of 2007. In 2007 high phosphorus levels put Lake Union in the poor water quality range. Overall the Total Phosphorus - Trophic State Index scores for Lakes Washington and Sammamish, appear to be somewhat lower in recent years.

Lake Sammamish is the only one of the three lakes with an approved management plan that includes designated water quality goals. The plan calls for an annual volume weighted total phosphorus concentration (VWTP) of 22 µg/L or less. Water from both the north and south lake stations met this goal in 2010 with a VWTP of 12 µg/L and 13 µg/L, respectively.

Influencing factors: In this region, phosphorus is most often the nutrient that promotes algal growth in freshwater. The more phosphorus that can be stopped from entering lakes, the less chance that a potentially toxic cyanobacteria bloom will occur. Phosphorus can be managed through well-designed drainage systems, maintenance of sewer infrastructure, changing homeowner and business behaviors (to use no phosphorus fertilizers on lawns), education and incentives, and replacing watershed septic systems with sewers.

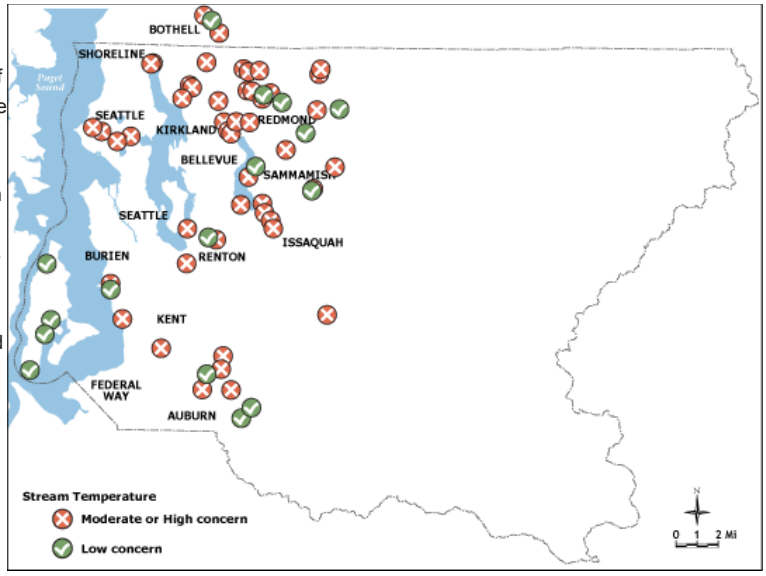
Existing DNRP response: King County will continue to monitor these lakes as part of its ongoing Major Lakes Ambient Monitoring Program. This program is designed to track how lakes respond over time to various activities and inputs from the watersheds through influent streams, lake nutrient cycles, ecological interactions, and seasonal or year-to-year variability in weather. The goal of 100 percent of the three major lakes being within the range of moderate to low risk of potential algal blooms was met in 2010. If the lakes begin to show serious deterioration in terms of their beneficial uses, actions will be taken to further investigate causes and plans will be made.

Priority new actions: King County recently adopted an ordinance, which will not take effect until 2011, that limits the non-agricultural use of phosphorus fertilizers in unincorporated King County. The state is currently considering similar fertilizer control legislation.

Stream Temperature

Marine Water Technical Reports

About this indicator: This indicator is based on the stream temperature standards established by the state of Washington. The stream temperature standards were established for the protection of designated beneficial uses — particularly for the protection of freshwater spawning, rearing and migration habitat for salmon. For this particular indicator, the focus is on the moving average of the daily maximum stream temperature based on continuous (every 15 minutes) observations of stream temperature conducted at routine monitoring locations by King County, the U.S Geological Survey and the Seattle District of the U.S. Army Corps of Engineers.



While observed exceedances of the stream temperature standard suggest impairment of designated uses, the Washington State Department of Ecology makes this determination under the Clean Water Act Sections 303(d) and 305(b) based on data collected by Ecology and additional data submitted by others. The result of Ecology's assessment includes placement of stream segments in one of five categories that range from Category 1 (meets standards) to Category 5 (polluted waters that require a Water Cleanup Plan — also known as a Total Maximum Daily Load (TMDL). Stream temperature TMDLs typically include the collection of additional data and the development of a stream temperature model to establish the magnitude of impairment relative to an idealized condition where riparian vegetation (and sometimes other factors) is restored to its maximum historic potential.

Status: Continuous temperature data from 65 stream and river sites in King County were measured and the moving 7-day average of the daily maximum temperature was calculated for 2010 and all other years for which data were available going back as far as 2000.

This indicator suggests that many streams and rivers throughout the county exceed the 16°C standard established for the protection of core summer salmonid habitat, with the exception of a few streams found in rural areas and less developed areas within the urban growth boundary.

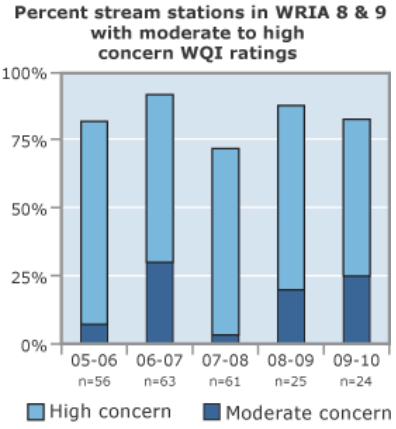
A stream temperature TMDL has been completed for the Bear-Evans Creek Basin, Newaukum Creek, the mainstem Green River below Howard Hanson Dam and the Snoqualmie River; and temperature TMDLs are under development for the Soos Creek Basin.

Influencing factors: Extensive development can substantially alter the extent of riparian shade that moderates daily peak stream temperatures. Development can also alter summer low flows through reduced groundwater recharge from impervious areas and by water management activities within the basin such as groundwater extraction and export via potable water supply and regional wastewater conveyance systems. Development induced increases in high flows combined with the loss of riparian tree cover can also cause the stream to become wider and shallower, which also contributes to higher peak stream temperatures. Climate change, particularly predicted increases in air temperature are expected to result in warmer stream conditions without substantial investment in restoring riparian shade and summer flow conditions.

Existing DNRP response: King County has a range of regulatory, educational, and on-the-ground programs to reduce the impacts of development on streams and protect and restore riparian vegetation. More attention is also being paid to how development and basin water management activities affect summer stream flow and approaches are being explored to restore and improve flows in streams where historical flow declines have been observed.

Priority new actions: The potential extent of impairment of streams for the designated use as core summer salmon habitat highlights the need for a more comprehensive and coordinated approach to identifying stream reaches that would most benefit from measures such as riparian shade restoration and improved summer stream flows. As noted in the Streams Water Quality Index, King County will work with Ecology, Puget Sound Partnership, and other regional stakeholders to advocate a regional scale water quality assessment, cleanup planning and implementation effort.

Streams Water Quality Index



About this indicator: King County's Streams Water Quality Index (WQI) integrates key factors into a single number that can be compared over time and across locations. This index compares monthly temperature, pH, fecal coliform bacteria, dissolved oxygen, turbidity, total suspended solids, and nutrients (phosphorus and nitrogen) relative to state standards and guidelines. This index was originally based on the Oregon Water Quality Index and work by the Washington Department of Ecology. In 2009, Ecology modified the WQI to reflect revised state water quality rules for the protection of native fish and aquatic resources. In addition to modifications for revised state criteria, the WQI was further modified in 2009 by Ecology to more directly reflect conditions in Puget Sound lowland streams. For purposes of year-to-year comparison, results from previous years were recalculated using the new Puget Sound Lowland Stream WQI.

Due to budget cuts, the Stream and River Monitoring Program was significantly reduced in 2009 from 63 sites on three rivers and twenty-eight streams to 24 sites on three rivers and eighteen streams. Four of these 24 stream sites are Vashon Island streams that are monitored through funding sources not associated with the Ambient Stream and River Monitoring Program. The Stream and River Monitoring Program now targets major rivers and streams that will best characterize potential sources of pollutant loading to a major water body. The 2009 Ambient Stream and River Monitoring Program reductions represent a significant loss of a long-term data set for many stream stations that have been monitored since the inception of Metro's monitoring programs in the early 1970s.

Status: The 2009-10 WQI scores indicated that 83 percent of the 24 sampling sites were of moderate or high water quality concern (poor to moderate water quality) and 17 percent were rated of low concern (good water quality). Two of the six sites rated high concern were are in WRIA 9 -- Springbrook Creek was affected by low dissolved oxygen, high phosphorus, and high fecal coliform bacteria, and Newaukum Creek was affected by high phosphorus and nitrogen, as well as high fecal coliform bacteria. Four WRIA 8 creeks were rated high concern — Thornton Creek was affected by high fecal coliform bacteria and high TSS. Juanita Creek was affected by high fecal coliform bacteria, high TSS, and low dissolved oxygen. North Creeks was also affected by high fecal coliform bacteria and low dissolved oxygen. Pipers Creek was affected by high phosphorus and high fecal coliform bacteria.

Influencing factors: Overall stream water quality in King County is impacted by increased development in our region — primarily stormwater runoff. Four of the 24 streams monitored had declining WQI scores compared with the previous year. Juanita, North, and Newaukum creeks WQI scores dropped from moderate concern to high concern, and Soos Creek changed from low concern to moderate concern. All of these creeks were impacted by rainfall events with high fecal coliform bacteria, and in most cases, total suspended solids measured in samples collected in September and January both following a significant rain event. Three of the four streams with improved WQI scores (Shinglemill, Fisher, and Judd) are on Vashon Island. Jenkins Creek also had an improved conditions going from the "moderate concern" rating in 2008-09 to back to "low concern" as in the previous five years.

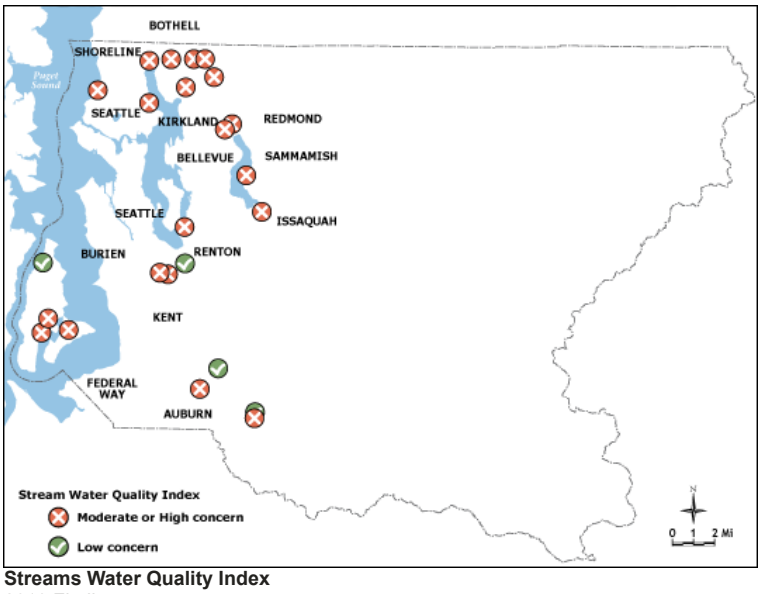
Stormwater, combined sewer overflows (CSO's), waterfowl and pet wastes are the most likely sources of bacteria in urban streams. Poor livestock manure management and failing septic systems can be a potential source of bacteria in agricultural and suburban areas. In wetlands, wildlife excrement and stagnant water conditions can lead to elevated bacteria counts. High phosphorus concentrations are found in fecal material and elevated concentrations are often linked to similar sources as bacteria. In addition, elevated phosphorus concentrations are linked to areas undergoing development primarily due to erosion.

Low dissolved oxygen concentrations can be associated with low flows, wetlands, high temperatures (colder water holds more oxygen), and high levels of organic matter (bacteria use up oxygen in the process of decomposing).

Existing DNRP response: King County is responsible for preserving water quality and preventing and repairing damage to its waterways and water bodies. Attention is given to high concern sites to improve water quality. This can involve properly maintaining facilities, constructing or engineering solutions, identifying where or how pollutants are entering the stream, and/or educating adjacent property owners about the impacts of pesticides and fertilizers on streams.

Priority new actions: Results from 2009-2010 King County's Streams Water Quality Index highlight the need for a comprehensive and coordinated approach to resolving in-stream flow management, since lower summer flows and increased stormwater runoff inflate every water quality measurement of the index. In 2010, King County worked with local jurisdictions and Washington State Department of Ecology on in-depth bacterial investigations for Issaquah and Idylwood creeks. In 2011, efforts will be focused on further identifying sources in Juanita, Idylwood, Issaquah, and Boise creek basins.

King County will work with the Puget Sound Partnership to advocate a coordinated effort in the planning at a regional scale.



Streams Water Quality Index
2010 Findings
Click to download the PDF version.

Nitrates in Groundwater on Vashon-Maury Islands

About this indicator: King County has been tracking groundwater quality on Vashon-Maury Island since 2001. Nitrate is used to track groundwater quality because it is a good indicator of changes caused by human activities, such as land-use development. King County's goal is to ensure high water quality through effective land-use and on-site septic regulations.

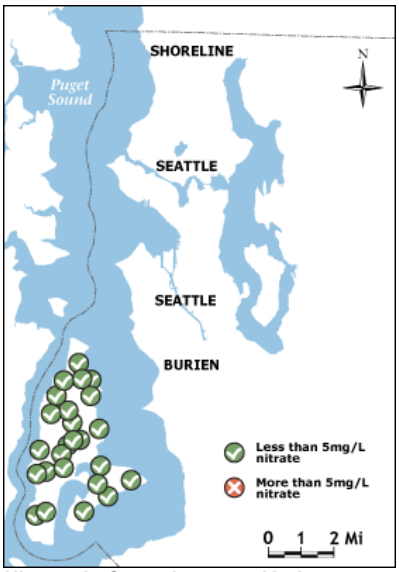
The groundwater quality indicator uses a nitrate index, defined as the maximum concentration of the annual sampling results divided by the maximum contaminant level (MCL) of Nitrate (10 mg/L). This method yields one number. The closer this index gets to 1 (or over 1) the greater concern. The nitrate index has been less than 0.5 since 2003. The nitrate index for 2010 is below 0.5 with a value of 0.46.

Status: Of the 25 well/spring sites monitored, all have tested below the drinking water standard (Maximum Contaminant Level, MCL of 10 mg/L) and all are less than 5 mg per liter of nitrate present. Less than half the sites tested have seen above average nitrate increases since testing began.

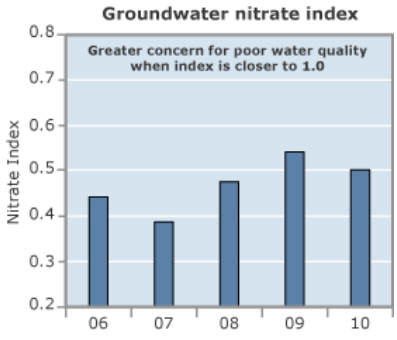
Influencing factors: Poor drainage systems, improperly maintained septic systems and improper fertilizer use can increase nitrate levels.

Existing DNRP response: King County plans to continue monitoring Vashon's wells and springs annually for nitrate concentrations.

Priority new actions: Additional locations have been sought to increase our understanding of island aquifers. King County intends to produce Vashon-Maury Island-wide water table, contour maps with seasonal variability that will be reported every year.



Nitrates in Groundwater on Vashon-Maury Islands
2010 Findings



Technical Notes

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INDICATORS

MARINE WATER QUALITY

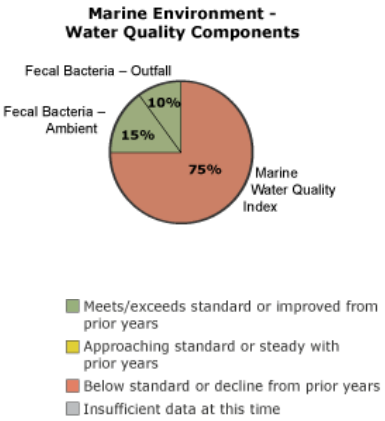
2010 Rating:

Marine Environment

About this indicator: King County's Marine Water Quality includes information about the conditions of marine waters.

Status: While, in general, the quality of open waters in Puget Sound is fair, marine water quality conditions in certain areas of King County show evidence of degradation. Waters that are in protected areas without much current are of concern.

Influencing factors: Stormwater carrying nutrients from septic systems, chemicals from motor vehicles and nitrogen from fertilizers degrade marine water quality and reduce oxygen levels for the animals that live and depend on Puget Sound habitats.



What you can do:

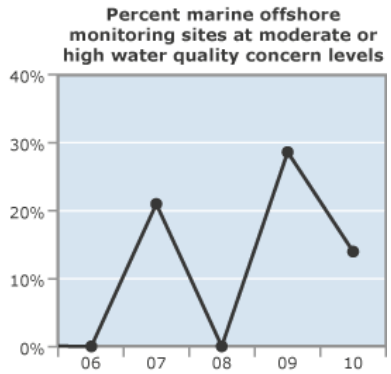
- Properly dispose of harmful chemicals, including unused pharmaceuticals and latex paints.
- Maintain, repair, or replace failing private septic systems.
- Minimize the use of fertilizers and pesticides by practicing natural yard care.
- Wash your car on the grass or gravel instead of on the street or driveway, or take it to a car wash.

More information about King County's marine waters is available by continuing below for these measures:

- **Marine Water Quality Index**
- **Fecal Bacteria in Offshore Marine Waters (ambient and outfall)**

Marine Water Quality Index

About this indicator: King County conducts monthly water quality monitoring at 14 offshore locations in Puget Sound. Offshore marine waters in King County are monitored for temperature, salinity, density, dissolved oxygen, nutrients, and chlorophyll. These variables can be used to assess eutrophication, (the process by which dissolved oxygen concentrations are depressed due to algae growth primarily caused by nutrients), sewage waste (ammonia), food availability to secondary producers (chlorophyll), and marine water habitat quality (temperature, salinity).



Status: 2010 findings indicate that the water quality at 12 stations is at a low level of concern. Two stations (one in Elliott Bay and one in the Central Basin off Point Jefferson) that were at a moderate level of concern in 2009 are now at a low level. Both stations in Quartermaster Harbor were at a high level of concern in 2010, as was the case in 2009. The station in the inner harbor received a high level of concern ranking due to low dissolved oxygen values and the station in the outer harbor due to five consecutive months of low dissolved inorganic nitrogen. These two sites will be monitored with in situ water quality monitoring equipment in 2011 due to the high level of concern for these waters.

The percentage of stations of Moderate or High Concern is 14.3%, which is an increase from 2008 (0%) and a decrease from 2009 (28.6%).

WHAT CAN YOU DO?

At Home

Puget Sound Shoreline Stewardship Guidebook

Shoreline Practices for a Healthy Lake, River or Stream

At Work

Reduce your runoff, get a fee discount

Learn Best Practices to reduce Stormwater Pollution

Understand Industrial Waste Discharge Limits

Related Information

Puget Sound Marine Topics

Puget Sound Watershed

Vashon Island Environmental Information

King County marine research vessel "Liberty"

Hood Canal Marine Life Struggling for Oxygen

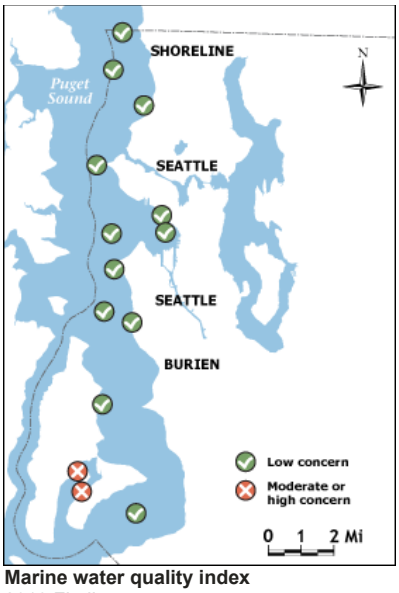
Lower Duwamish Watershed

Marine Benthic Invertebrate Communities Near King County Wastewater Outfalls

Water and Land Resources Division

Influencing factors: Vertical water density patterns can be indicators of an area's potential sensitivity to developing low dissolved oxygen conditions. Low oxygen conditions are harmful to fish and other aquatic life and may occur as a result of the natural flow of low oxygenated Pacific Ocean water into the deep main basin of Puget Sound, in addition to processes such as eutrophication. Persistently low nitrate concentrations in surface water can indicate a potential sensitivity to nutrient-rich input such as stormwater runoff, industrial waste discharges, septic systems, and flow from rivers. Ammonia can be found at elevated concentrations as a byproduct of sewage, agricultural practices, and fertilizer use in urban areas.

Existing DNRP response: DNRP will continue to operate its wastewater treatment plants and conveyance system effectively to maintain low levels of nutrients discharged into marine waters. The new Brightwater Treatment System will use state of the art technology to reduce nutrients and other pollutants. King County, along with other monitoring partners, is currently involved in a four-year study to assess the role of nitrogen, if any, on dissolved oxygen levels in Quartermaster Harbor. Nutrient levels are also addressed by the agency through stormwater control management practices. Additionally, DNRP will continue to play an active role in the Puget Sound Partnership toward improving water quality throughout the entire Puget Sound.



Marine water quality index
2010 Findings

Priority new actions: Stratification intensity and its persistence is beyond King County's influence, but should be monitored as it is an important indicator of areas sensitive to possible water quality problems.

Fecal Bacteria in Offshore Marine Waters (ambient and outfall)

About this indicator: The presence of fecal bacteria in water bodies indicates contamination with the fecal material of humans, birds, or other warm-blooded animals. Although these bacteria are usually not harmful themselves, they often occur in conjunction with other disease-causing pathogens, and their presence at high levels indicates an increased possibility that people might get sick if they come into contact with the water.

Washington State has a marine surface water quality bacteria standard based upon fecal coliforms. This standard was derived for the protection of human health and addresses water quality requirements for both primary contact recreational uses (e.g. swimming and SCUBA diving) as well as the consumption of shellfish. This fecal coliform standard is a geometric mean of **14 colony forming units /100ml**, calculated over a 12-month sampling period.

King County conducted monthly water quality monitoring in 2010 at 14 offshore locations in Puget Sound. Offshore monitoring locations are divided into two categories, ambient and outfall stations. Ambient stations are chosen to reflect general, or ambient, environmental conditions, while outfall stations are located at King County wastewater treatment plant outfalls and county-operated combined sewer overflow outfalls. Monitoring occurred at seven outfall stations and seven ambient stations in 2010. Ambient stations were located in the Central Basin of Puget Sound as well as Elliott Bay and Quartermaster Harbor.

The status of this indicator is based upon the geometric mean of the fecal coliform bacteria counts over the 12-month period of calendar year 2010 in samples collected from 14 monitoring stations at a depth of one meter below the surface.

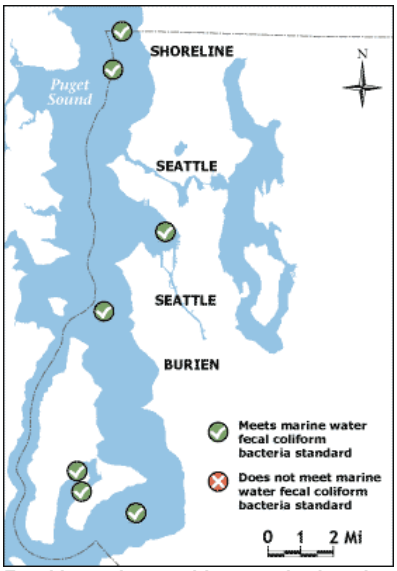
Status: All ambient and outfall stations met the fecal coliform bacteria geometric mean standard in 2010. Fecal coliform bacteria counts do not appear to be an ongoing concern in offshore surface marine waters within King County.

Influencing factors: Fecal coliform bacteria can enter Puget Sound from domestic animals, wildlife, storm water runoff, wastewater discharges, and failing septic systems. Non-point source pollution (e.g. storm water runoff and agriculture) is the major cause of marine water bacterial contamination.

Existing DNRP response: DNRP will continue to manage its wastewater treatment plants and conveyance system effectively. The county is working with the Puget Sound Partnership effort toward protecting and restoring the health of marine waters.

Priority new actions: No major changes to the offshore marine water quality monitoring program are planned for 2011.

Marine Water Technical Reports



Fecal bacteria at ambient monitoring sites
2010 Findings
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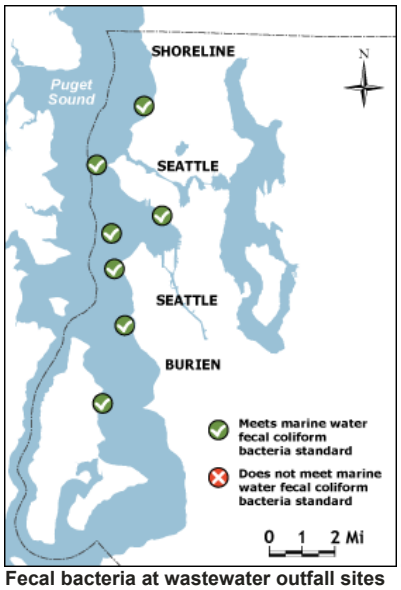

Fecal bacteria at wastewater outfall sites
2010 findings
Click to download the PDF version.

Technical Notes

For definitions and more detail.

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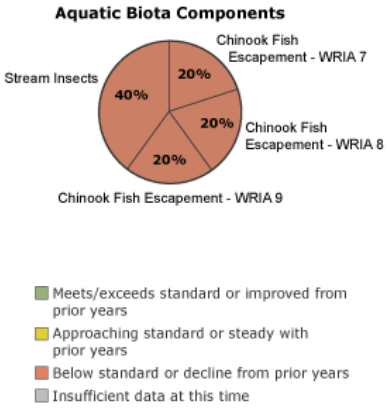
INDICATORS

AQUATIC BIOTA

About this indicator: King County's Aquatic Biota Index is derived from two main groupings of results regarding numbers of fish and stream insects. Chinook salmon are the only fish reflected in this category. Other fish species should be included in the assessment of aquatic biota health, but there is no consistently collected data regarding these animals in King County.



Status: Information gathered over the last 100 years indicates an overall decline in the health of native, naturally spawning salmon populations in Puget Sound watersheds.

Influencing factors: Development and deteriorating water quality impact wildlife habitat — particularly the amounts of hard or paved surfaces, loss of tree cover and other changes to natural environments.

What you can do:

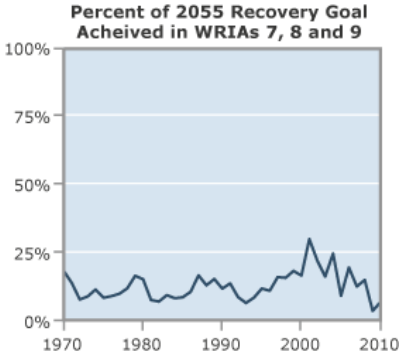
- Plant trees and reduce impervious surfaces by using pervious pavers in drive and walkways.
- Encourage your local city or town to make tree protection regulations stronger.
- Contact your elected officials and express how important wildlife protections are to you—including salmon restoration.

More information about King County's Fish and Stream Insects is available by continuing below for these measures:

- **Chinook Salmon**
- **Stream Insect Health**

Chinook Salmon

About this indicator: Salmonid fishes native to King County include chinook, coho, sockeye/kokanee, pink and chum salmon, rainbow (including the anadromous form called "steelhead"), cutthroat, bull and dolly varden trout and pygmy and mountain whitefish. Each of these species has a diverse life history and relies upon a range of habitats for spawning, rearing, feeding and migration. They also have major cultural, economic and political roles in the Pacific Northwest. Of these, Chinook, Bull trout, and Steelhead have been listed for protection under the Endangered Species Act. Throughout much of Washington State, the harvest and hatchery propagation of these fish populations and to a lesser extent, their habitat, are co-managed by the State of Washington, through the Washington State Department of Fish and Wildlife (WA DFW), and the treaty Indian tribes.



King County includes all or portions of four major watersheds, which are denitified by Watershed Resource Inventory Areas (WRIA): the Snohomish (WRIA 7), Cedar/Lake Washington (WRIA 8), Green/Duwamish (WRIA 9) and Puyallup/White (WRIA 10). Although King County does not manage fish populations directly, it does have jurisdictional responsibility for many activities, including land-use regulation, which greatly influences the quantity, quality and distribution of salmon habitats.

Natural chinook salmon spawning ground escapement is the number of mature, adult chinook salmon that escape fisheries and return to their stream

WHAT CAN YOU DO?

At Home

Embrace Natural Yard Care

Home & garden hints for healthy streams & salmon

At Work

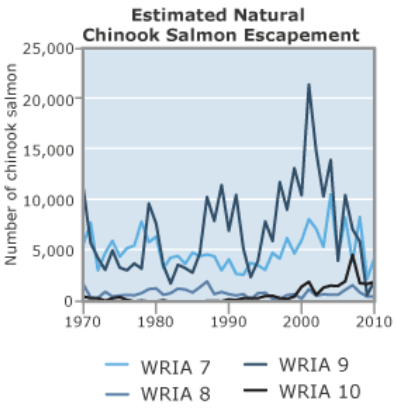
Apply Integrated Pest Management in your landscaping

Related Information

Stream Bug monitoring

Shoreline Ecological Characterization

of origin to spawn naturally. It is an indicator of the abundance of chinook salmon and can be used, along with other population indicators, to evaluate the overall health of marine and freshwater ecosystems.



Chinook salmon long-term recovery goals (recovery goals) were established to be reflective of characteristics of a viable salmon population[1]: abundance, geographic distribution, genetic and phenotypic diversity and productivity. These recovery goals were established for watersheds through the cooperative Puget Sound Shared Strategy process. The recovery goals to be targeted are 64,000 for WRIA 7, 12,200 for WRIA 8 and 27,000 for WRIA 9. There are no recovery goals for WRIA 10.

This indicator is based on the percent of natural chinook salmon escapement with respect to an adjusted annual recovery goal for each WRIA, where applicable. Our weighting system for this indicator is applied equally to WRIA 7, 8 and 9

Status: The fish counts for WRIAs 7, 8 and 9 have been on a decreasing trend since about 2000-2004. For WRIAs 7 and 9, the fish counts are up from 2009 by almost double and triple, respectively. The WRIA 10 fish count has shown a increasing trend since the 1980s. Natural variations are expected due to a wide variety of influencing factors. Overall, the natural chinook salmon escapement results in 2010 for each WRIA were far below the respective adjusted annual recovery goal and comprised of only 7 percent of the recovery target.

Influencing factors: Natural Chinook salmon escapement is related to the habitat and water quality of the County's rivers and streams, along with several other factors such as precipitation, hatcheries, biology, harvest, and flow management. Some annual variation in salmon returns is to be expected and is unrelated to local human influences. For example, natural cycles of ocean warming and cooling and longer term trends in climate can also greatly affect local salmonid productivity.

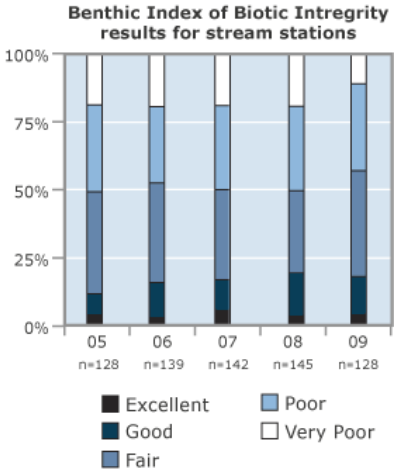
Existing DNRP response: Inter-jurisdictional, watershed-based salmon conservation plans have been completed for WRIA's 7, 8, 9 and 10. The plans were submitted to federal agencies for review in 2005, and accepted by the National Marine Fisheries Service in February 2006 with a few additions. The plans include actions for meeting long-term recovery goals. King County serves as the lead agency for two WRIA's and participates in the efforts and activities of all four. The county will continue its participation in the WRIA process and the larger, region wide Shared Strategy For Puget Sound process to secure funding for and implement the measures identified in these plans toward habitat improvement projects that should help to recover the species.

Priority new actions: King County is in the implementation phase for the WRIA 7, 8 and 9 Salmon Conservation and Habitat Plans.

[1] A viable salmon population is defined as one with a negligible risk of extinction in 100 years. Negligible has been taken to mean less than 5%.

Stream Insect Health

About this indicator: King County monitors stream health by collecting samples of benthic macroinvertebrates, commonly referred to as "bugs," from selected streams.



Scientists use a scorecard system called the Benthic Index of Biotic Integrity (B-IBI) to rank stream health. The BIBI scores are based on the type and number of stream bugs present in the stream. This scoring system allows comparison of different streams to each other and can also be used to rank general ecological health of the streams. The BIBI scoring system ranks sites as Excellent, Good, Fair, Poor or Very Poor.

Status: Samples are collected annually from approximately 125 - 150 stations (approx. 100 streams and tributaries) within 37 sub-basins across the Lake Washington/Cedar/Sammamish (WRIA 8) and the Green/Duwamish (WRIA 9) watersheds. In 2010, samples were collected from 143 sites; these samples are currently being analyzed. Results for samples collected in 2009 are the most recent available data. When data from all sites (n=128) are combined and compared across all sampling sites results are generally similar to previous years. The percent of sites classified as "Very Poor" in 2008 decreased slightly from 19% to 11% in 2009; . In 2009 approximately 46% (compared to 51% in 2008) of the

sites in WRIA 8 and 37% (compared to 42% in 2008) of the sites in WRIA 9 were classified as Very Poor or Poor. Only 5% of the sites in WRIA 8 and 2% of the sites in WRIA 9 were classified as Excellent.

Influencing factors: Development, pollutants in stormwater runoff, loss of forest cover, elevated stream temperatures, and invasive and non-native plants are a few factors that can influence stream macroinvertebrate populations. Property access and insufficient flows in streams can influence the number of sampling sites, affecting annual comparisons.

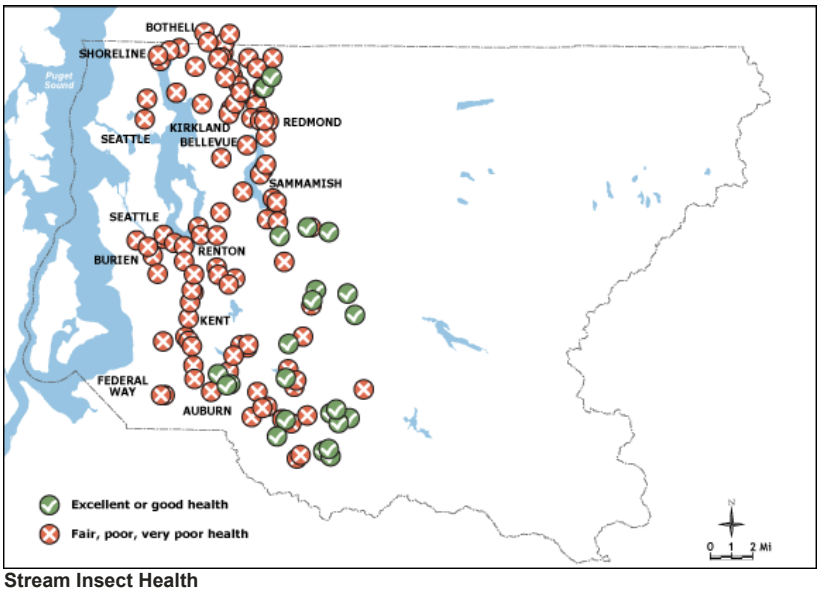
Existing DNRP response: WLRD continues to implement programs that focus on minimizing degradation associated with development and pollutant runoff from farms, maintaining forest cover and its numerous stormwater benefits, or implementing watershed improvement projects. King County's Stormwater Program focuses on flow control to minimize adverse effects from development, provides surface water design standards for new development and inspects and maintains stormwater control facilities.

The county continues to work with landowners to restore streamside parcels that have important benefits as aquatic resources. In addition, WLRD's capital projects program builds small and large stream and wetland enhancement projects. Basin stewards work with the local community to respond to resident's inquiries for watershed protection, coordinate efforts among diverse public agencies and facilitate watershed project implementation. The Agriculture Program works with farmers and livestock owners to prevent agricultural pollutants from running off into streams.

Priority new actions: Implementation of the county's Critical Areas Ordinance and federal total maximum daily load (TMDL) requirements for impaired water bodies are regulations that will also support water quality improvements in both incorporated and unincorporated areas.

Additional data and monitoring program details can be found at **http://www.pugetsoundstreambenthos.org**. This site includes the data summarized above, in addition to data for other monitoring programs throughout the region.

King County recently received an Environmental Protection Agency Grant to enhance and standardize benthic macroinvertebrate monitoring tools for the Puget Sound Region. The grant will enhance collaboration and partnerships throughout the region and ultimately improve the ability to evaluate regional trends in stream health.



Stream Insect Health
2009 Findings
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INDICATORS

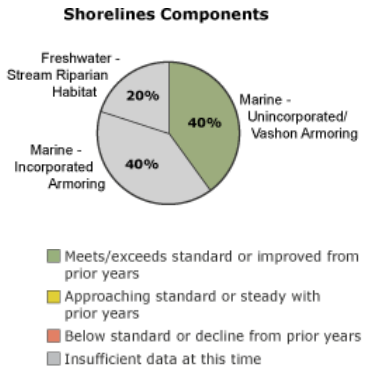
SHORELINES

2010 Rating:

About this indicator: King County's Shorelines Index is derived from two main groupings of results describing the conditions of shoreline along marine and freshwater environments. Wetland conditions do not factor into the index at this time because of inadequate data.

Status: A high percentage of shoreline has been armored with bulkheads and other structures. Countywide, stream riparian areas in rural areas have higher forest coverage than urban areas.

Influencing factors: Bulkheads impede natural erosion and cut off the supply of sand, rocks and other natural features that are home to native plant and animal species. Less forests along stream riparian corridors result in less stormwater control, less habitat for forest species, and aquatic systems that are less-healthy for fish.



What you can do:

- Consider alternatives to bulkheads and other artificial barriers to marine shorelines.
- Encourage your local city or town to make tree protection regulations stronger.

More information about King County's Shoreline Index is available by continuing below for these measures:

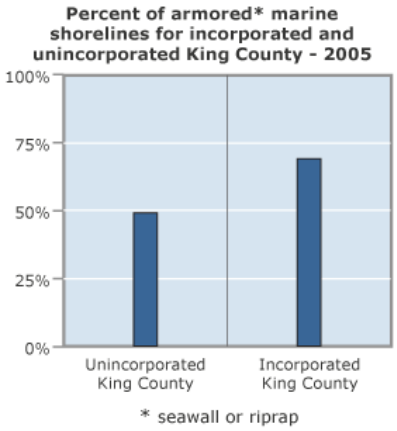
- **Marine Shoreline Armoring**
- **Stream Riparian Habitat**

Marine Shoreline armoring

About this indicator: King County's Shorelines Marine Environment Index includes information about the conditions of marine shorelines. Our weighting system applies 50 percent towards unincorporated/Vashon Island armoring and 50 percent toward incorporated area shoreline armoring.

Shoreline armoring can take the form of a bulkhead, sea wall, riprap, or any other built impediment to naturally advancing tidewaters. The amount of shoreline that has been armored can be used as a general indicator of the condition of marine shorelines.

When armoring is present, the health of habitats decline in the nearshore area (the water, shoreline and adjacent upland areas). The nearshore area is an important feeding, nesting and resting ground for many fish and wildlife species, including young salmon as they migrate from the stream of their birth to marine rearing areas.



Status: Conclusions from a baseline survey for shoreline armoring in 2005 show that many beach-feeding sediment sources have been locked up behind armoring. Much of King County's mainland shoreline has been armored — in stark contrast to the relatively natural shorelines along Vashon-Maury Islands.

The Central Puget Sound Basin is one of the most heavily urbanized areas within Puget Sound, and King County's armored marine shoreline is indicative of this.

Influencing factors: Property owners build bulkheads to protect their homes and businesses from erosion.

Existing DNRP response: King County is working to decrease the rate of new and currently existing shoreline armoring in

WHAT CAN YOU DO?

At Home

Puget Sound Shoreline Stewardship Guidebook

Shoreline Practices for a Healthy Lake, River or Stream

Related Information

Vashon Island Environmental Information

Shoreline Ecology

Shoreline Parcel Characterization

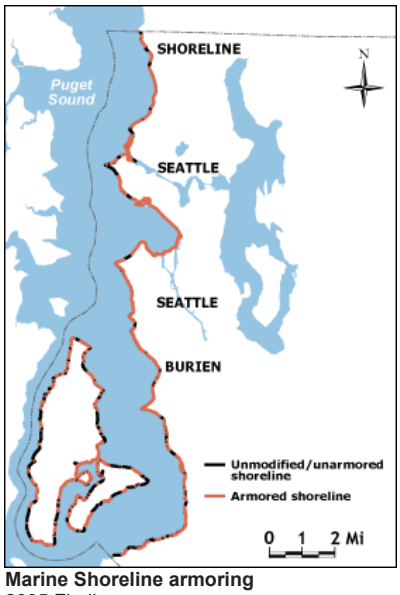
Interactive Shorelines Map

Shoreline Master Plan Updated

unincorporated areas. Recognizing that not all armoring has the same impacts, these reductions will be focused where sediment delivery is restricted and most important. Removing or preventing armoring in deeper, inter-tidal waters is also a priority.

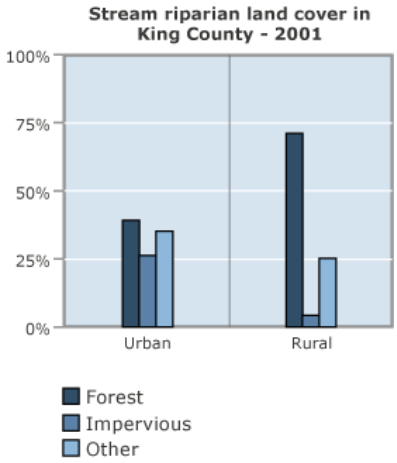
Many Vashon Island waterfront property owners who are applying for flexibility to critical areas regulations through the Rural Stewardship Planning process are being provided with alternatives to bulkhead construction.

Priority new actions: With a baseline in place, follow-up surveys of new armoring every five years will provide useful information. This will allow for a more realistic review of changes that occur naturally and the results of those initiated by King County. Additionally, King County's Shoreline Master Program update was adopted by the County Council in late 2010 and is awaiting adoption by The Washington Department of Ecology. The new SMP should reduce the rate of new shoreline armoring, especially within the Maury Island Marine Reserve.



Marine Shoreline armoring
2005 Findings
Click to download the PDF version.

Stream Riparian Habitat



About this indicator: King County's Shorelines Freshwater Environment Index includes information about the conditions of stream riparian habitats. There is no program for Lakes and River Floodplain Habitats.

Increased population and development have substantially altered the landscape in King County over the past two centuries. This indicator reflects landscape changes that protect forest and aquatic habitats along streamside, or riparian, corridors.

Forest data were derived from a 2001 Landsat image, and impervious area data were derived from 2000 multispectral images. The width of riparian areas along stream banks varied between a minimum 165-foot buffer on each side and expanded to include wetland and steep slope areas. Possible landslide areas that extend past this buffer were also included. This approach to defining "riparian areas" is intended to encompass functional features of adjacent lands that could have been missed if a simple buffer width were used.

Status: Stream riparian land cover was categorized by urban vs. rural areas. Countywide, stream riparian areas in rural areas (71percent) have higher forest coverage than urban areas (39 percent), as shown in Chart 1 and Figure 1. Impervious coverage along the riparian corridor in urban areas (26 percent) was almost seven times more than in rural areas (4 percent).

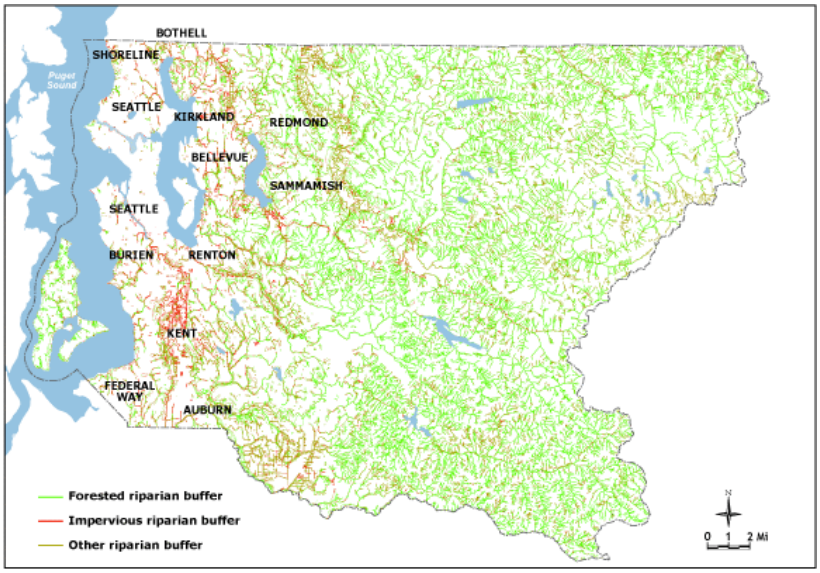
Influencing factors: Forests naturally regulate stormwater runoff, protect water quality, provide habitat for many species, and maintain healthy streams and rivers for salmon and other fish. Less forests result in less stormwater control, less habitat

for forest species, and aquatic systems that are less-healthy for fish. Increases in impervious surfaces are generally associated with the highest rates of stormwater runoff, the highest degradation in water quality, and the most impacts on forest and aquatic species.

Existing DNRP response: Land-use regulations, which were updated as part of the Critical Areas Ordinance in 2004, attempt to maintain a minimum of 65 percent forest cover and limit impervious areas to less than 10 percent in rural, unincorporated King County. They also provide extra protection for aquatic riparian areas. King County DNRP intends to monitor forest cover and impervious area within riparian zones.

The county works with landowners to restore streamside parcels that have important benefits as aquatic resources. In addition, the King County Water and Land Resources Division's capital projects program builds small and large stream and wetland enhancement projects while protecting public safety. Habitat restoration projects include streamside and wetland planting and in-stream habitat improvements.

Priority new actions: King County is in the midst of updating its 30-year old Shoreline Master Program, which guides land-use activities along shorelines of marine areas and most lakes and streams in unincorporated King County. The first step in this effort is to review current shoreline conditions, including ecology, public access, land use and historic resources. The program update, which is expected to be completed in mid 2010, will include changes that will have an effect on this indicator.



Stream Riparian Habitat
2001 Findings
Click to download the PDF version.

Technical Notes

For definitions and more detail.

Back to top

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- Mistakes to fix

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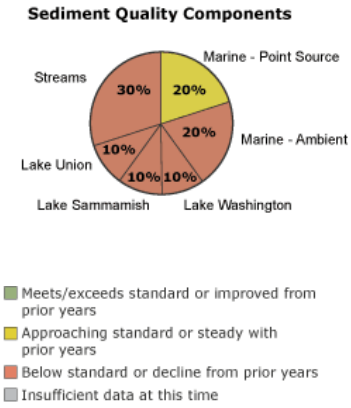
INDICATORS

SEDIMENT QUALITY

2010 Rating: ↓

Sediments in Puget Sound

About this indicator: King County monitors sediments in lakes, streams, and at marine sites as part of it's ambient monitoring programs. Sediment quality is an important indicator of environmental health, and along with indicators of water quality, habitat, and the aquatic food web (i.e. plankton, invertebrates, and fish), it can present a clearer picture of environmental quality. Once contaminants are washed into surface waters and attach to bottom sediments they can persist where people can be exposed to them directly or indirectly by eating fish that have been caught in our local lakes, streams, and along shores where some of these contaminants can bioaccumulate up the food chain.



Status: Overall most of the lake stations found to have chemical concentrations high enough to probably be causing adverse effects in aquatic organisms were located in Lake Union and Lake Sammamish. Contaminants were found in streams in concentrations high enough to probably be causing adverse effects in aquatic organisms. Of the ambient sampling, more than half of the stations passed all of the chemical criteria.

What you can do:

- Properly dispose of pharmaceuticals, harmful chemicals and paints, instead of pouring them down the drain or allowing them to run off the ground.
- Minimize use of fertilizers and pesticides by practicing natural yard care.
- Wash your car on the grass or gravel instead of on the street or driveway, or take it to a car wash.
- Properly dispose of or manage met and livestock wastes.

More information about King County's Sediment Quality Index is available by continuing below for these measures:

- **Large Lakes Sediment Quality**
- **Stream Sediment Quality**
- **Marine Point Source Sediment Quality**
- **Marine Ambient Sediment Quality**

Large Lakes Sediment Quality

About this indicator: To understand what effect chemicals in sediments may be having on aquatic life, chemical concentrations are compared to sediment quality guidelines. The Washington State Department of Ecology has not promulgated numeric freshwater sediment chemical standards, but has evaluated existing numeric sediment quality guidelines and proposed a new set of numeric guidelines, known as the floating percentile method, for use in Washington State freshwater sediments.

In addition to using the floating percentile-derived guidelines, a more widely used set of guidelines that were developed by Smith et al (1996) in the Great Lakes region in 1996 were also used. These Smith guidelines represent a good balance between sensitivity and efficiency and also include guidelines for organochlorine pesticides (DDT, dieldrin, etc.), which are not included among the floating point guidelines.

WHAT CAN YOU DO?

At Home

Puget Sound Shoreline Stewardship Guidebook

Shoreline Practices for a Healthy Lake, River or Stream

At Work

Reduce your runoff, get a fee discount

Learn Best Practices to reduce Stormwater Pollution

Understand Industrial Waste Discharge Limits

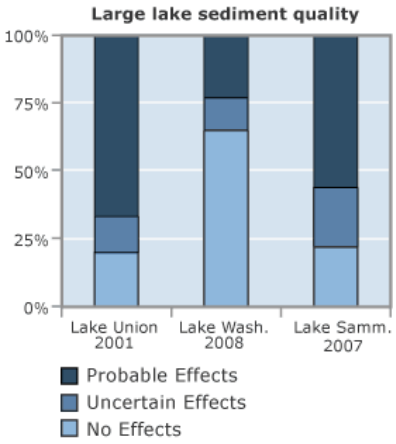
Related Information

Puget Sound Marine Topics

Puget Sound Watershed

Vashon Island Environmental Information

The Major Lakes Sediment Monitoring Program was begun in 1999 in Lakes Sammamish, Washington, and Union. An updated 10-year program was launched in 2007 to collect sediment quality information near storm drains, swimming beaches, and wildlife habitat areas. Additionally, a two-tiered sampling design allows for the assessment of long term trends in the deep main basins of the three major lakes.



This indicator is divided into three ratings: 1) adverse effects to aquatic organisms from chemical concentrations are unlikely; 2) adverse effects to aquatic organisms from chemical concentrations are uncertain; and 3) adverse effects to aquatic organisms from chemical concentration are probable. The three large lakes, Lake Washington, Union and Sammamish are weighted equally at 30 percent each for this indicator.

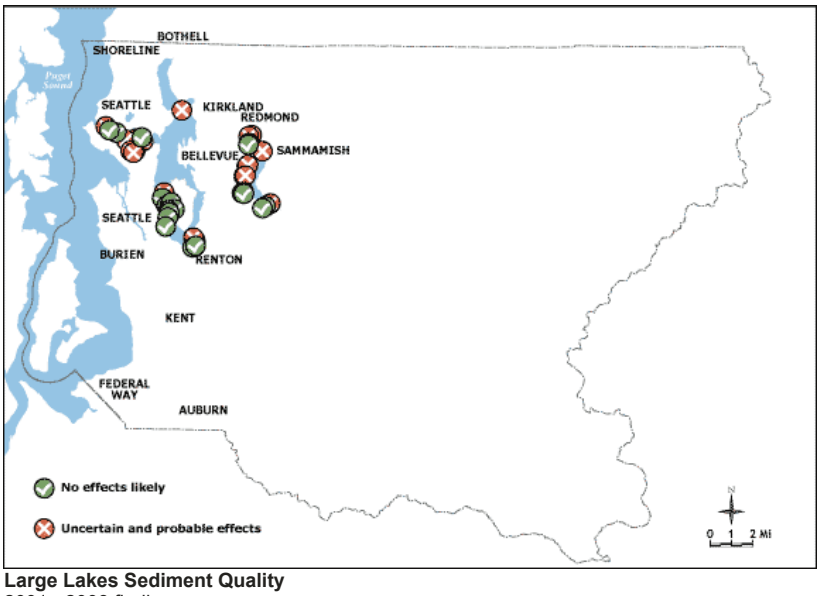
Status: In 2007 and 2008, 35 sediment samples were collected from Lakes Washington and Sammamish. A total of 18 samples were collected in Lake Sammamish, and 17 samples were collected in Lake Washington. Samples were analyzed for a variety of organic and metal contaminants. These data were compared to sediment quality guidelines. Results indicated that in Lake Sammamish concentrations in 10 of the samples were high enough to suggest that adverse effects to aquatic organisms are likely, in 4 samples effects are uncertain, and in 4 samples effects are unlikely. In Lake Washington concentrations in 4 of the samples were high enough to suggest adverse effects to aquatic organisms are likely, in 2 samples effects are uncertain, and in 11 samples effects are unlikely.

For 2011, the budget for this program was cut, resulting in the abandonment of the program part way through its 10-year design life. Additionally, no allocation was made to interpret and report data collected in 2010.

Influencing factors: Point sources, stormwater, and other discharges such as irrigation runoff, can wash contaminants into surface waters.

Existing DNRP response: This program's budget was cut and the program terminated.

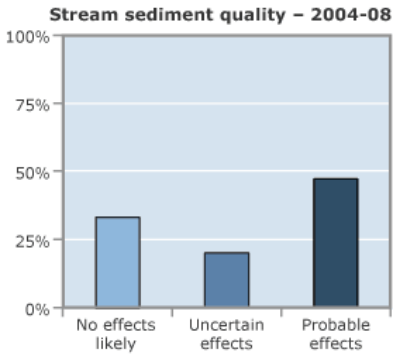
Priority new actions: None



Large Lakes Sediment Quality
2001 - 2008 findings

Streams Sediment Quality

About this indicator: To understand what effect chemicals in sediments may be having on aquatic life, chemical concentrations are compared to sediment quality guidelines. The Washington State Department of Ecology has not promulgated numeric freshwater sediment chemical standards, but has evaluated existing numeric sediment quality guidelines and proposed a new set of numeric guidelines, known as the floating percentile method, for use in Washington State freshwater sediments.



In addition to using the floating percentile-derived guidelines, a more widely used set of guidelines that were developed by Smith et al. in the Great Lakes region in 1996 were also used. These Smith guidelines represent a good balance between sensitivity and efficiency and also include guidelines for organochlorine pesticides (DDT, dieldrin, etc.), which are not included among the floating point guidelines.

The Stream Sediment Monitoring Program was begun in 1987 in WRIAs 8 and 9 as part of the overall Lakes and Streams Ambient Monitoring Program. An updated 10-year program began in 2004 to monitor the effects of all sources (point sources, stormwater, and other discharges) to the streams. Additional parameters were added to the existing sediment monitoring program to better understand the range of contaminants that affect sediment quality. A two-tiered sampling design allows for the assessment of sediment quality in individual stream basins as well as long-term trend analysis.

This indicator is divided into three ratings: 1) adverse effects to aquatic organisms from chemical concentrations are unlikely; 2) adverse effects to aquatic organisms from chemical concentrations are uncertain; and 3) adverse effects to aquatic organisms from chemical concentration are probable.

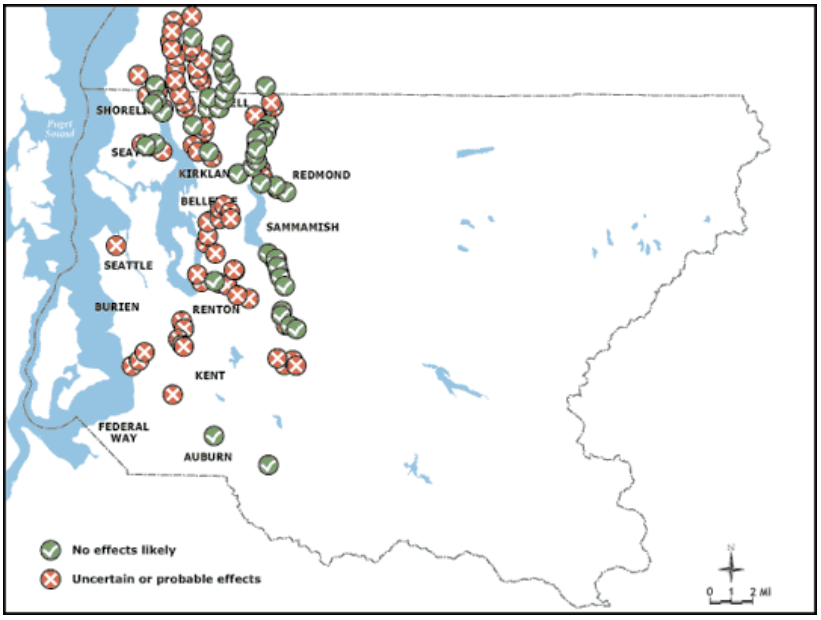
Status: Samples have been collected from 123 stations in King County streams between 2004 and 2008. Results from analysis completed in 2008 indicate that, while sediments at 48 of the stations were likely having no adverse effects on sediment biota. Concentrations, however, exceeded at least one sediment quality guideline at the remaining 75 stations. Of these 75 stations, 31 had concentrations low enough that the effects were uncertain and 44 had concentrations that were likely having adverse effects. Metals, phthalates (chemical plasticizer found in plastics) and legacy pesticides, such as DDT, continue to be a concern and are likely causing adverse effects to aquatic organisms in King County streams.

For 2011, the budget for this program was cut, resulting in the abandonment of the program part way through its 10-year design life. Additionally, no allocation was made to interpret and report data collected in 2010.

Influencing factors: Point sources, stormwater, and other discharges such as irrigation runoff, can wash contaminants into surface waters.

Existing DNRP response: This program's budget was cut and the program terminated.

Priority new actions: None



Streams Sediment Quality
2004 - 2008 findings

Marine Point Source Sediment Quality

About this indicator: Washington State's Sediment Management Standards seeks to reduce and ultimately eliminate adverse effects on biological resources and any significant human health risk from surface sediments in marine, low salinity or estuarine and freshwater environments. The Sediment Quality Standard, or "no adverse effects level," is the most protective chemical standard for marine sediments. The Cleanup Screening Level, or the "minor adverse effects level," helps identify areas of potential concern that may be designated cleanup sites.

The Sediment Quality Standard has been selected as the indicator because it is the more sensitive of the two criteria for environmental protection. Data from 2001 are used because they represent the most recent comprehensive survey of sediment quality in King County. In 2001, sediment sites were divided into two categories. Ambient sites were chosen to reflect general, or ambient, environmental conditions. Point source stations are located near King County wastewater treatment plant outfalls and combined sewer overflow outfalls. Data from 2001 is still relevant for analysis because sediments (particularly those that are polluted) move slowly and do not change much over five years unless clean up efforts have been taken.

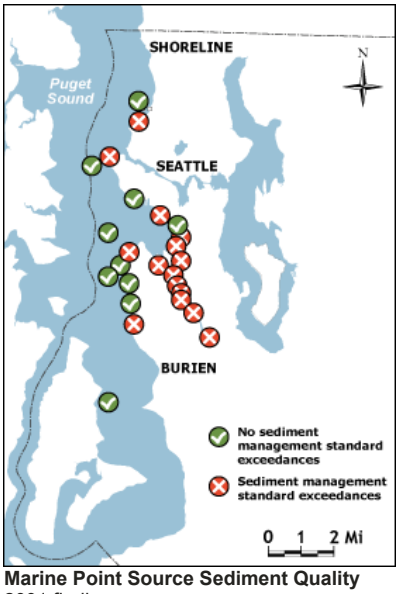
Details related to a 2007 sampling event for ambient stations are presented with the indicator for Marine Environment — Ambient Sediment Quality.

Status: Of the 15 point source-related sites that exceed the Sediment Quality Standard, eight do not require clean up or monitoring. Six of the remaining seven point source sites are associated with combined sewer overflow outfalls, and one is associated with an emergency overflow.

Influencing factors: Many pollutants found in the environment are not detected in water, but are attached to sediment particles. Once in the sediments, these pollutants can directly harm marine organisms or be reintroduced to the food chain through the organisms found in marine sediments.

Existing DNRP response: Strategies to achieve the outcome goal focus on collaborating with other organizations, including the City of Seattle, Port of Seattle, and Boeing, with which King County has joined to form a public-private partnership called the Lower Duwamish Waterway Group. This group will be funding cleanups at "early action sites" as part of the Lower Duwamish Waterway federal Superfund process. A partial cleanup was completed in 2004 at the first of these sites, the Duwamish/Diagonal Way site. A follow-up cleanup was completed in 2005.

Priority new actions: The cleanup of the Lower Duwamish Waterway includes a multi-agency, source-control effort to reduce the potential for future recontamination. Additional sediment site cleanups may be completed later under Superfund, or as part of other activities in the Duwamish waterways. It is expected that three to five additional sites could be addressed by 2010.



Marine Point Source Sediment Quality
2001 findings

Marine Ambient Subtidal Sediment Quality

About this indicator: Washington State's Sediment Management Standards (SMS) seek to reduce and ultimately eliminate adverse effects on biological resources and any significant human health risk from surface sediments in marine, low salinity or estuarine, and freshwater environments. King County developed a new ambient marine sediment sampling program in 2007. Data from subtidal marine sediment samples collected from stations in Puget Sound within King County were compared to the SMS chemical criteria (Chapter 173-204 WAC).

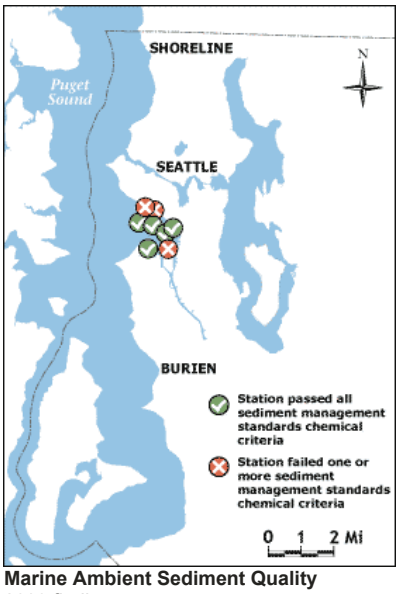
As part of the new plan, King County will be collecting subtidal marine sediment samples from eight locations in Elliott Bay, every two years, and from three locations in the Puget Sound main basin and three associated embayments (Salmon Bay, Fauntleroy Cove, and Quartermaster Harbor), every five years. In 2007, sediment chemistry data from 14 locations were used for this indicator. Sediment samples were collected from the eight Elliott Bay Stations in 2009. The other six ambient stations will not be sampled again until 2012.

Status: No marine ambient subtidal sediment sampling was performed in 2010. Based on the 2009 data for Elliott Bay (the most recent data), five of the eight Elliott Bay stations (63%) passed all SMS chemical criteria. Three of the eight stations (37%) failed one or more SMS chemical criteria. The Harbor Island station failed the mercury and bis(2-ethylhexyl) phthalate criteria, the grain terminal station failed the PCB criterion, and the Piers 90/91 station failed the bis(2-ethylhexyl) phthalate criterion.

Influencing factors: Many pollutants found in the environment are not detected in water, but are attached to sediment particles. Once in the sediments, these pollutants can directly harm marine organisms or be reintroduced to the food chain through the organisms found in marine sediments.

Existing DNRP response: King County will continue to monitor ambient sediment quality in its marine waters every two years in Elliott Bay and every five years in the central basin of Puget Sound and associated embayments. The eight Elliott Bay stations will next be sampled in 2011 and the other six ambient stations in 2012.

Priority new actions: There are no "priority new actions" at this time.



Marine Ambient Sediment Quality
2009 findings

Technical Notes

For definitions and more detail.

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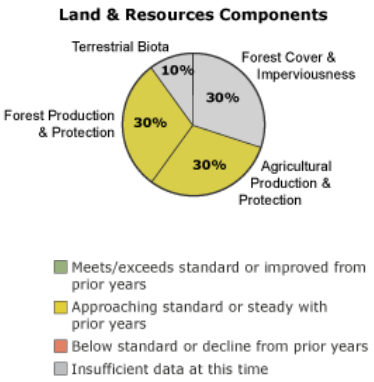
INDICATORS

LAND AND RESOURCES

2010 Rating: ⇔

About this Indicator

This indicator summarizes the status of conditions that address the conservation of land and other natural resources in King County. The land and resources included in this indicator are generally ones that King County's Department of Natural Resources and Parks seeks to improve through its program and service delivery. While DNRP can track certain aspects of agriculture and forestry protection and productivity, we have the ability to only periodically track levels of forest cover and imperviousness and have no regular or comprehensive way to track and understand changes in terrestrial/land-based biota (plants and animals).



Status

Agriculture and forestry productivity and protection levels in King County are generally stable and near their targeted levels. Currently there are 41,150 acres of zoned farmland in the county, some of which is not farmable due to wetlands, steep slopes and other conditions. The development rights on 13,215 agricultural acres have been purchased through the Farmland Preservation Program.

Forest protection levels remain at or near targets, with about 30% of the rural acres covered by stewardship plans or enrolled in incentive programs.

Influencing factors

A wide range of State and Federal policies, economic conditions, and the decisions of individual property owners affect the land and resources conservation practices here. Markets for agricultural and timber products, priorities of landowners, conservation incentives of the Farm Bill, and consumer preferences all bear on landowner decisions that affect conservation.

Budget allocations, regulatory and policy changes all play a role in land conservation and acquisition activities. The ability of the Farmland Preservation Program to purchase development rights depends on the available funding and farmland values vary widely depending on the location of the farm in the county.

DNRP response

DNRP has been advancing a range of innovative programs to encourage and support the conservation of land and resources in King County. These include:

- Puget Sound Fresh;
- Transfer of Development Rights program;
- Current Use Taxation incentive programs;
- Local Action on Biodiversity;
- The Farmland Preservation Program; and
- Various Forest Conservation programs

What you can do:

Landowners interested in improving conservation practices have a range of useful; resources to draw upon. Important actions may include:

WHAT CAN YOU DO?

At Home

Create your own Native Plant Landscape

Volunteer for a Habitat Restoration Project

Buy local farm products

At Work

Develop a Forest Stewardship Plan

Reduce Holiday Food Waste

Related Information

DNRP Budget And Organization Chart

Forestry Topics

Agriculture Topics

King County Ecological Lands

Greenprint for King County

GIS Center iMap

- **Develop a conservation and/or biodiversity protection plan**
- **Investigate resource protection incentive programs**
- **Transfer development rights**

As a consumer in King County, you can help maintain the viability of local agriculture by purchasing from local farmers, visit **Puget Sound Fresh**.

More information about King County's Land and Resources indicators is available by continuing to these indicators:

- **Forest Cover & Imperviousness**
- **Agricultural Production & Protection**
- **Forest Production & Protection**
- **Terrestrial Biota**

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INDICATORS

FOREST COVER AND IMPERVIOUSNESS

2010 Rating:

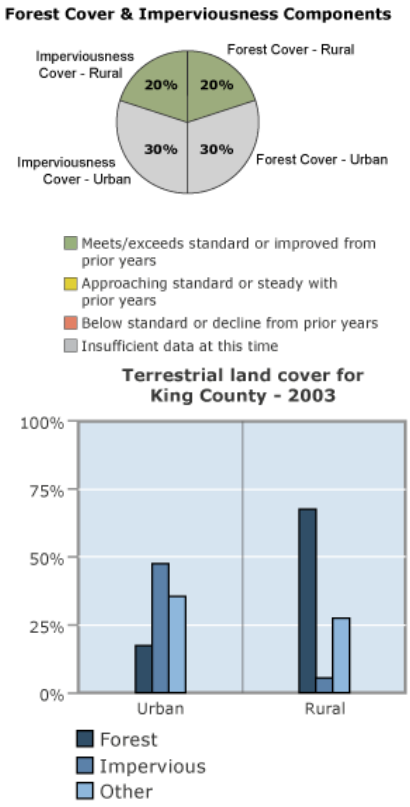
About this indicator: Increased population and development have substantially altered the landscape in King County over the past two centuries. Of particular interest for the protection of salmon and other aquatic resources is the conversion of forest and natural land cover to hard or impervious surfaces, such as roofs, sidewalks parking lots and roads.

This indicator reflects landscape changes that protect forest and aquatic habitats. The percent of the landscape maintained as forest, and the percent that has been converted to impervious area, is presented watershed-wide for all of King County. Forest data were derived from a 2001 Landsat image, and impervious area data were derived from 2000 multispectral images.

Status: Total land cover was categorized by urban vs. rural areas. Countywide, rural areas (67 percent) have higher forest coverage than urban areas (17 percent). Impervious coverage in urban areas (47 percent) was almost 10 times more than in rural areas (5 percent).

Influencing factors: Forests naturally regulate stormwater runoff, provide habitat for many species and maintain healthy streams and rivers for salmon and other fish. Less forests result in less stormwater control, less habitat for forest species and aquatic systems that are less healthy for fish and other species. Increases in impervious surfaces are generally associated with the highest rates of stormwater runoff, the highest degradation in water quality and the most impacts on forest and aquatic species.

Existing DNRP response: Land-use regulations, recently updated as part of the Critical Areas Ordinance in 2004, attempt to maintain a minimum of 65 percent forest cover and limit impervious areas to less than 10 percent in rural, unincorporated King County. King County DNRP intends to monitor forest cover and impervious areas.



Priority new actions: King County is in the midst of updating its 30-year old Shoreline Master Program, which guides land-use activities along shorelines of marine areas and most lakes and streams in unincorporated King County. The first step in this effort is to review current shoreline conditions, including ecology, public access, land use and historic resources. The program update, which is expected to be completed in late 2008, will include changes that will have some effect on this indicator.

WHAT CAN YOU DO?

At Home

Volunteer for a Habitat Restoration Project

At Work

Develop a Forest Stewardship Plan

Smart Growth

Related Information

Forestry Topics

King County Ecological Lands

Greenprint for King County

GIS Center iMap

Native Plants

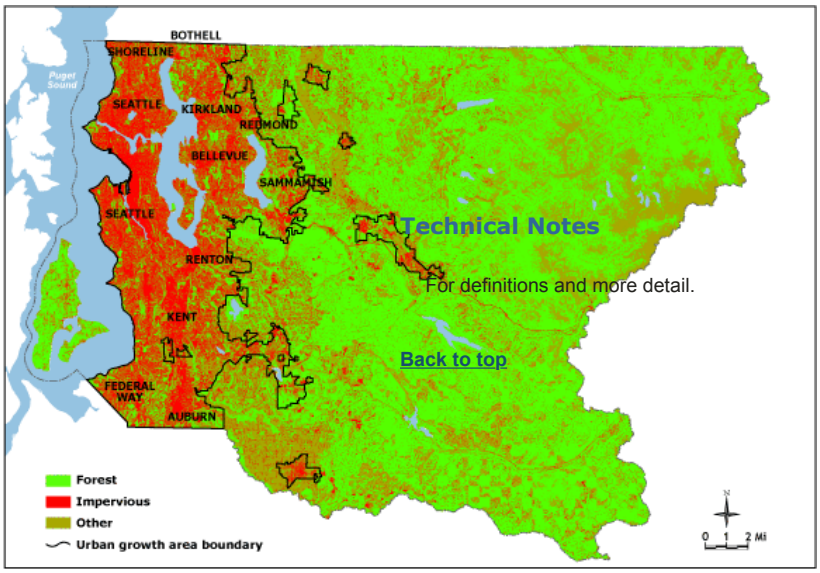
Snoqualmie Valley farmers' conservation efforts

Plant Biodiversity

PCBs Threaten Duwamish River Cleanup

Arsenic and lead contamination in King County soil

Wa Ecology soil study of King County



Forest covered and impervious areas
2003 Findings
Click to download the PDF version.

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INDICATORS

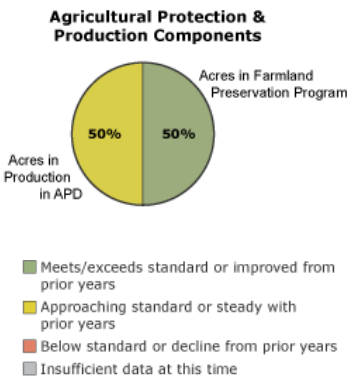
AGRICULTURAL PRODUCTION & PROTECTION

2010 Rating:

About this indicator: Agriculture is an important land use in the county. The production of food is a critical contribution to supporting the healthy diets of King County citizens. Farms provide important benefits such as providing habitat for wildlife and fish, improve water quality, and offer opportunities to learn about our local environment.

One major challenge to maintaining agriculture in the county is the ability of farmers to find affordable land. The Farmland Preservation Program helps preserve agriculture by purchasing the development rights from farmland. This helps reduce the cost of farmland by discouraging other non-farm uses.

Existing DNRP response: In cooperation with the King County Agriculture Commission, DNRP continues to identify and prioritize farms that could be enrolled in the Farmland Preservation Program. As funding becomes available, we work with the landowner to purchase their development rights.



We monitor and suggest updates to the County's Comprehensive Plan and Code for policies and regulations that adversely affect (or don't reflect the changing nature of) agriculture. We work to develop incentives that encourage farming in the county.

What you can do:

- Purchase local farm products. For a list of local farms see www.pugetsoundfresh.org
- Support local farm preservation efforts
- If you own land that is not being farmed, consider enrolling it the FarmLink Program. Please see www.cascadeharvest.org

More information about King County's Agricultural Production & Protection Index is available by continuing below for these measures:

- Acres in Farmland Preservation Program
- Acres in Production in APD

Acres in Farmland Preservation Program

About this indicator: The Farmland Preservation Program helps preserve agriculture by purchasing the development rights from farmland. This helps reduce the cost of farmland by discouraging other non-farm uses.

Status: The development rights on 13,215 acres have been purchased through the Farmland Preservation Program

Influencing factors: The ability of the Farmland Preservation Program to purchase development rights depends on the available funding. Farmland values vary widely depending on the location of the farm in the county.

Priority new actions: Continue to explore new and enhanced funding options for the Farmland Preservation Program.

Acres in Production in APD

About this indicator: The number of acres in production is an important indicator of the health of agriculture in the county. Local food production is critical to the food security of the county.

Status: Currently there are 41,164 acres of zoned farmland in the county.

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Smart Growth

Related Information

Forestry Topics

King County Ecological Lands

Greenprint for King County

GIS Center iMap

Native Plants

Snoqualmie Valley farmers' conservation efforts

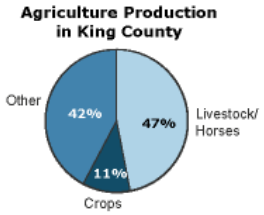
Plant Biodiversity

PCBs Threaten Duwamish River Cleanup

Arsenic and lead contamination in King County soil

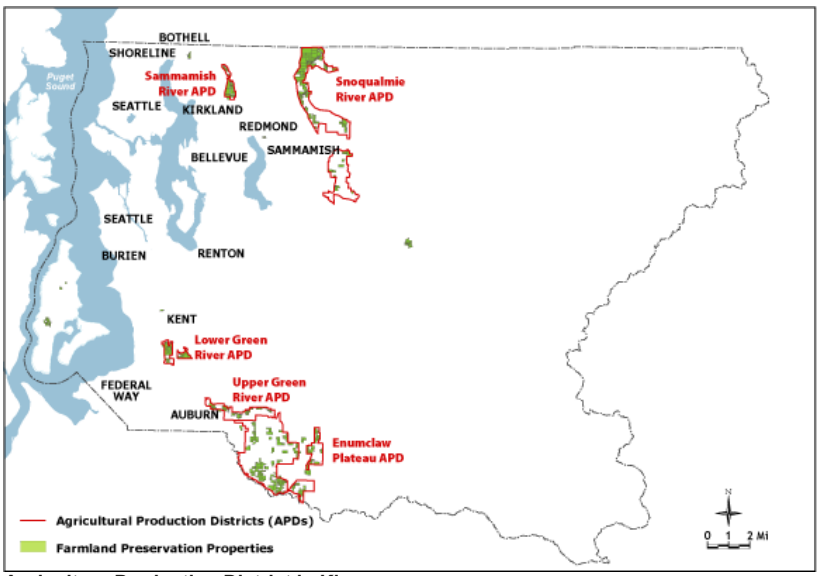
Wa Ecology soil study of King County

Some of that land is not farmable due to wetlands, steep slopes and other conditions. Therefore, about 24,000 acres are actually farmed. In addition there are 25,000 acres of land farmed in other areas of the county, mainly on RA zoned land. When taking into account the variable methods in measuring farmed properties from one reporting period to another, the amount of farmed acres has remained relatively stable.



Influencing factors: There are other uses than agriculture allowed in the APDs. One of the more popular uses is for lifestyle reasons. This reduces the ability of a person who wants to farm to compete successfully for land.

Priority new actions: Continue to develop marketing and regulatory incentives to encourage farming throughout the county



Agriculture Production District in King County
2003 Findings
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Technical Notes

For definitions and more detail.

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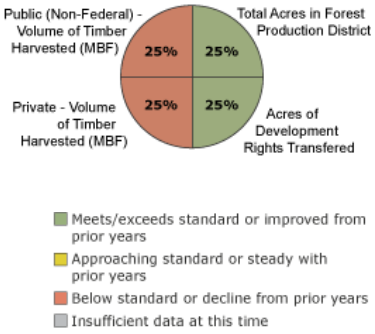
INDICATORS

FOREST PRODUCTION AND PROTECTION

2010 Rating: ⇔

About this indicator: This forestry indicator combines a look at forest land conservation with forest production trend information. The indicators include both private and public lands.

Forest Protection & Production Components



The Forest Production District (FPD), which is the county's designated forestland of long term commercial significance, is 824,000 acres, over half of King County. Another 52,630 acres have been identified as Rural Forest Focus Areas; these are blocks of the rural area that are predominantly forested.

The number of acres of forestland in the FPD and the number of acres of forested land conserved through easements limiting the development rights are used as indicators of long term conservation of working forest.

Washington Department of Revenue data is used to track the volume of timber harvested in King County each year. It is an indicator of the economic activity of forestry reflecting the general health of the forest industry. It is broken down into public and private lands.

DNRP Response: The DNRP Forestry Program works on County policy to encourage forestry and to ensure that the County is meeting its obligations under the state's Growth Management Act to protect forestland of long term commercial significance. Policies encourage both the protection of the land base and support for continued forestry as a commercial activity. The Department staffs the Rural Forest Commission, which advises on County policies, regulations and programs relevant to forestry. The Department also has a Transfer of Development Rights (TDR) program that works with forest landowners to transfer development rights from their properties to ensure permanent protection of forest resources through conservation easements placed over the property when development rights are transferred.

What you can do

- Develop a forest stewardship plan for your forested property
- Learn how to protect your home from wildfire and have a healthy forest too
- Consider enrolling protecting your forested land through a property tax reduction or transfer of development rights program

More information about King County's Forest Production & Protection Index is available by continuing below for these measures:

- Acres of Development Rights Transferred
- Total Acres in Forest Production District
- Private — volume of timber harvested (MBF)
- Public (non-federal) — volume of timber harvested (MBF)

Acres of Development Rights Transferred

About this indicator: This indicator looks at acres preserved in forest in the Forest Production District and Rural Forest Focus Areas. Securing easements on private forestland to restrict development is a relatively new conservation tool in King County.

Status: More than 140,000 acres of working forest in King County have been protected through King County's Transfer of Development Rights program. Public transactions have protected nearly 94,500 acres and private transactions have protected more than 45,500 acres. The two largest deals were a King county purchase of development rights from 89,500 acres of the Snoqualmie Tree Farm and a private transaction protecting more than 45,000 acres in the upper Green River

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Arsenic and lead contamination in King County soil

Wa Ecology soil study of King County

watershed.

Influencing factors: Adding to the acreage under easements is a result of complicated negotiations, funding availability, and willingness of landowners to enter into easement agreements.

Priority new actions: DNRP is not only working to protect large forested tracts, but is also working with the owners of smaller forest acreages that experience strong pressure to convert forest to urban land uses.

Total Acres in Forest Production District

About this indicator: Total acreage in the FPD zoning designation is stable while land use patterns within the FPD are subject to change. Population growth puts pressures on the forest industry, as the land becomes more valuable for residential uses and encroaching development makes it more difficult to conduct forestry operations.

Status: Currently there are 824,000 acres in the Forest Production District. Of this, 233,00 acres are owned by large commercial interests. This is a decrease of about 53,000 acres since 1997.

Influencing factors: An analysis of private land ownership changes reveals that forestland in the FPD is gradually being subdivided and sold by large timber companies to smaller individual and commercial ownerships. The smaller parcels are more likely to be developed for residential purposes and not managed for commercial forestry. Government purchases of commercial forestland in the FPD in recent years also have tended to take land out of forest production.

Priority new actions: Two adopted 2008 Comprehensive Plan policies address the public land in the FPD. One recognizes the large area of the FPD that is publicly owned, encourages continued forest management on these lands, and directs the County to collaborate with other land managers. The second directs the County to encourage continued private forestry in its acquisition efforts, and directs that acquisitions in the FPD be evaluated to ensure that the long term commercial significance of the FPD is not compromised.

Private — volume of timber harvested (MBF)

About this indicator: Timber sale volume in the county is used as an indicator of the general health of the forest industry. Timber harvests vary widely from year to year, so it is useful to examine many years of data in order to see trends.

Status: In 2009 timber harvested on private land totaled 42.8 million board feet valued at $9.7 million. Timber harvests have generally declined since 2006 with a particularly sharp drop in 2009 to 48% of the ten-year average annual volume.

Influencing factors: The data show that forest harvest is variable from year to year. Probably the biggest influencing factor in how much timber is harvested in any year is the price of logs, which varies considerably depending on housing markets and other factors. In contrast, the harvest levels on public land are more likely a result of long term plans rather than a response to markets.

Public (non-federal) — volume of timber harvested (MBF)

About this indicator: The variation in harvest levels on public land does not follow the trend on private lands. They both vary widely, but do not track each other from year to year.

Status: Timber harvests on public lands in King County totaled 15.3 million board feet valued at $3.3 million in 2009. These represent a sharp drop in both volume and revenue from 2007, but are higher than 2008 and approach the annual averages for the last 10 years.

Influencing factors: A large part of the FPD, sixty-eight percent, is in public ownership, which preserves the forest land base, but does not necessarily contribute to forestry activity. The USDA Forest Service ownership, the Cedar River and Tolt River watersheds owned by the City of Seattle, the State Natural Resource Conservation Areas, and the King County natural areas, are restrictive in their land management policy, allowing no or very limited forestry activities.

Priority new actions: New proposed Comprehensive Plan policies encourage continued forest management on public lands in the FPD and direct that the County's acquisitions of private forestland in the FPD be evaluated to ensure that the long term commercial significance of the FPD is not compromised.

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For definitions and more detail.

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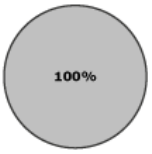
INDICATORS

TERRESTRIAL BIOTA

2010 Rating:

Indicator: King County's Terrestrial Biota Index is weighted at 10 percent of the entire Land & Resources Index. Mammals, birds, amphibians, and overall biodiversity should be included in the assessment of wildlife health, but there is no consistently collected data regarding these animals or biodiversity in King County. A long-term wildlife monitoring program is proposed as a new biodiversity initiative through King County's Local Action for Biodiversity efforts. However, a program has not been established nor funding secured.

Terrestrial Biota Components



Terrestrial Biota

- Meets/exceeds standard or improved from prior years
- Approaching standard or steady with prior years
- Below standard or decline from prior years
- Insufficient data at this time

Influencing factors: Over the past two centuries, increased human population and development have substantially altered King County's landscape. A decrease in the amount of vegetated land cover has generally reduced the amount of habitat for native animal and plant species. Pollutant runoff, loss of forest cover, loss of wetlands, climate change, fragmented habitat, and invasive species are the more significant factors that have an effect on terrestrial biota.

Existing DNRP response: Although there is no existing population monitoring for terrestrial biota in King County, WLR continues to implement programs that focus on minimizing degradation from development and pollutant runoff from farms, preventing the loss of forest cover, and implementing watershed improvement projects. WLR's capital projects program builds wetland enhancement projects. Basin stewards work with the local community to respond to resident's inquiries for watershed protection, coordinate efforts among diverse public agencies, facilitate watershed project implementation, provide assistance to monitoring programs and provide public education opportunities.

Priority new actions: King County is developing a biodiversity strategy and action plan.

What you can do: Contact your elected officials and express how important wildlife protections and a biodiversity strategy are to you.

More information about King County's Terrestrial Biota is available by continuing to these pages:

- Biodiversity in King County
- Beavers
- Species of Interest in King County
- King County Biodiversity Report 2008
- Aquatic Plants
- Mussels

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Home & garden hints for healthy streams & salmon

Salmon Safe Practices

Salmon Smart: A Guide to Help People Help Salmon

At Work

Volunteer for a Habitat Restoration Project

Related Information

Salmon and Trout Topics

Shoreline Parcel Characterization

Green-Duwamish Habitat Projects

Clean river for fish and wildlife

Salmon ladder award

Toxic Stormwater Threatens Sea Life

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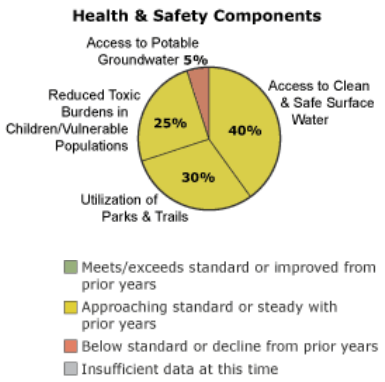
INDICATORS

HEALTH AND SAFETY

2010 Rating: ⇔

About this Indicator

This new indicator summarizes the status of several conditions that contribute to the health and safety of King County residents. These conditions are ones that King County's Department of Natural Resources and Parks seeks to improve through its program and service delivery.



Status

Most sub-indicators are approaching standards and/or are stable.

Influencing factors

Many broad societal and economic factors, as well as individual decisions, bear on conditions that affect the health and safety of King County residents.

Utilizations rates of parks and trails are affected by weather, the team sport programs of school districts, and the popularity of private facilities and programs that serve local residents.

The toxic burdens to children and vulnerable populations in our communities are influenced by national and state laws, product design decisions of consumer product manufacturers, and exposure levels that vary by household.

Access to clean and safe surface waters of streams, rivers, lakes and marine waters are influenced by decisions of households and local businesses, federal and state policies, and legacies of prior industrial activities.

DNRP response

The Local Hazardous Waste Management Program (LHWMP) has a range of innovative programs underway to combat exposure to and build-up of toxic substances in humans and the environment. LHWMP is focusing its efforts to increase

- the protection of King County's most vulnerable residents by:
- Working 'upstream' to reduce the production of hazardous wastes and materials;
- Facilitating 'product stewardship' policies and programs; and
- Enhancing hazardous waste management capacities and responsibilities

To improve access to clean and safe surface waters, DNRP is:

- improving facilities which convey and treat wastewater
- partnering with other jurisdictions to promote stewardship of land and water
- reaching out to land owners and land managers with technical assistance and education

To increase utilization of parks and trails, DNRP is:

- Expanding and improving the Regional Trail System
- Partnering with community organizations to expand and improve facilities for passive and active recreation
- Improve maintenance levels at existing park facilities

What you can do

WHAT CAN YOU DO?

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Shoreline Practices for a Healthy Lake, River or Stream

Embrace Natural Yard Care

Home & garden hints for healthy streams & salmon

At Work

Reduce your runoff, get a fee discount

Learn Best Practices to reduce Stormwater Pollution

Erosion Control for Construction Sites

Apply Integrated Pest Management in your landscaping

Related Information

DNRP Budget And Organization Chart

King County Watersheds

Salmon and Trout Topics

Shoreline Master Program

Streams Water Quality Monitoring Data

Groundwater data

Normative Flow Studies

Interactive Hydrography Map

- Minimize your impact to surface waters by driving less, cleaning up pet waste, and improving yard care practices.
- Reduce toxic burdens through environmentally-preferable purchasing decisions, eating lower on the food chain, nd reducing your exposure to house dust and other environmental contaminants.
- Protect groundwater through water conservation and improving yard care and land management practices.

More information about King County's Health & Safety indicators is available by continuing to these indicators:

- **Access to Clean & Safe Surface Water**
- **Utilization of Parks & Trails**
- **Reduced Toxic Burdens in Children / Vulnerable Populations**
- **Access to Potable Groundwater**

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EPA: Lower Duwamish Watershed

INDICATORS

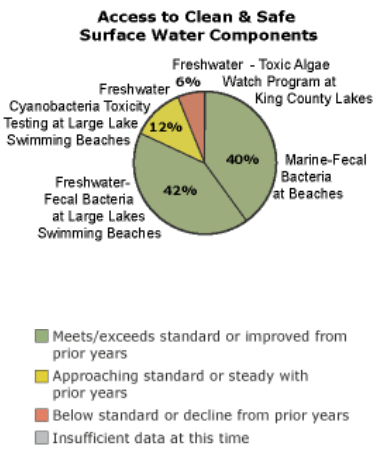
ACCESS TO CLEAN AND SAFE SURFACE WATER

2010 Rating: ⇔

About this indicator: King County's Access to Clean and Safe Surface Water Index includes information about the conditions of water quality at freshwater and marine environments.

Status: Overall, conditions were at standard.

Influencing factors: Fecal coliform bacteria can enter lakes, streams and Puget Sound from untreated wastewater effluent, household or farm animals, wildlife, storm water runoff, sewage overflows or failing septic systems. Increased temperatures due to regional climate changes, coupled with increased watershed development and nutrients, may lead to increased cyanobacteria blooms and possible toxin production. Cyanobacteria populations are known to increase with increased nutrients in the lake.



What you can do:

- Properly dispose of or manage pet and livestock wastes.
- Minimize the use of fertilizers and pesticides by practicing natural yard care.
- Wash your car on the grass or gravel instead of on the street or driveway, or take it to a car wash.
- Report algal blooms on lakes.

More information about King County's Access to Clean and Safe Surface Water is available by continuing below for these measures:

- Fecal Bacteria at Large Lakes Swimming Beaches
- Routine Cyanobacteria Toxicity Testing at Large Lakes
- Toxic Algae Watch Program at all Lakes
- Fecal Bacteria at Marine Beaches

WHAT CAN YOU DO?

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Shoreline Practices for a Healthy Lake, River or Stream

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Duwamish River Cleanup Coalition

At Work

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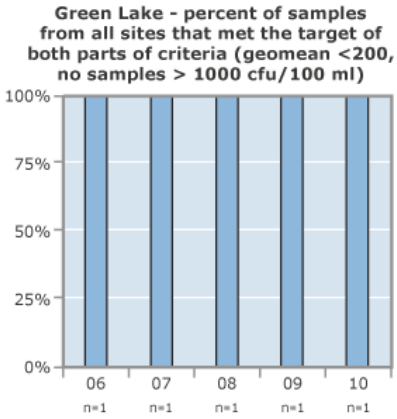
Erosion Control for Construction Sites

Apply Integrated Pest Management in your landscaping

Fecal Bacteria at Large Lakes Swimming Beaches

About this indicator: When fecal coliform bacteria are found in lake waters it indicates a higher probability that the water has been contaminated with fecal material from humans, birds or other animals. Although fecal coliform bacteria themselves are usually not harmful, they often occur with other disease-causing bacteria so their presence indicates the potential for pathogens to be present that are a risk to human health.

Status: Beaches monitored in Lake Washington, Lake Sammamish, and Green Lake all met target goals in 2010. None of the tested sites violated both parts of "The Ten State Standard" - a geometric mean of 200 CFU/100ml (colony forming units per 100 milliliter) fecal coliform with no single sample exceeding 1000 CFU/100ml. In Lake Washington two new swimming beach sites were added in 2010, Waverly Park Beach and Marina Park Beach. Monitoring at Magnuson Off Leash Area was discontinued as incidences of high counts appeared to be related to poor pet practices and were short lived. Juanita Beach was not monitored as the park was closed for renovation.



Influencing factors: Fecal coliform bacteria can enter lakes from untreated wastewater effluent, household or farm animals,

Related Information

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Salmon and Trout Topics

Shoreline Master Program

Streams Water Quality Monitoring Data

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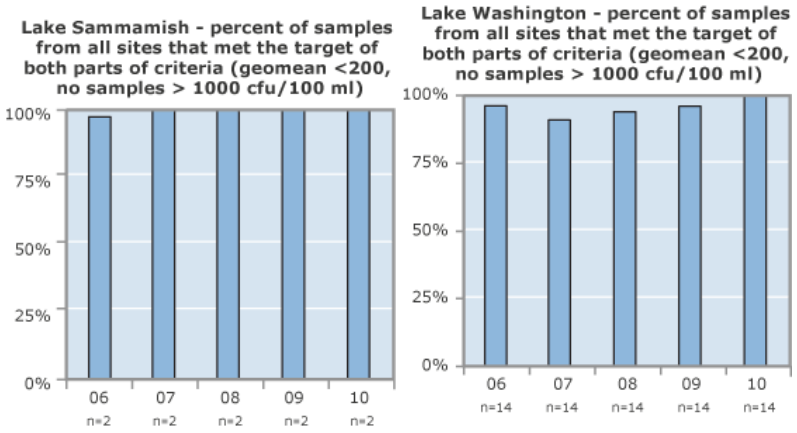
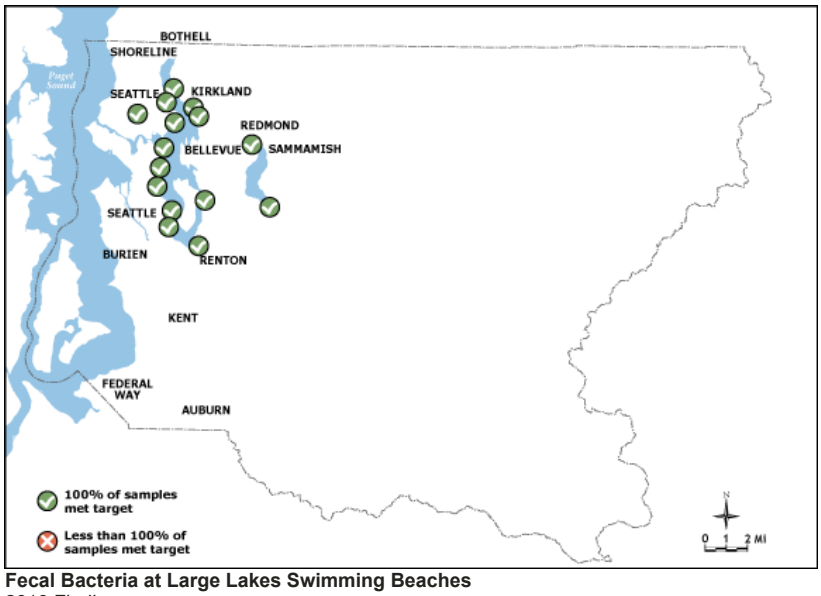
Interactive Hydrography Map

wildlife, storm water runoff, sewage overflows or failing septic systems. Monitoring results have shown that streams draining from urbanized areas have high fecal coliform concentrations. Beaches that are adjacent to these streams are at higher risk for fecal bacteria contamination.

Existing DNRP response: King County routinely monitors swimming beaches from mid-May through mid-September to determine levels of bacterial pollution and works with Public Health Seattle & King County to estimate relative human health risks. If bacterial counts at swimming beach testing sites have a geomean greater than 200 colonies per 100 ml of water or have a single sample greater than 1000 colonies per 100 ml, the beach will be temporarily closed.

Priority new actions: Identification and correction of sewer leaks, changes to park maintenance procedures and control of non-migratory, non-native waterfowl should reduce bacteria contributed from waterfowl and improve the water quality at large lake swimming beaches. Efforts to identify and correct bacterial source in the urban streams that discharge adjacent to swimming beaches will continue. An intensive bacteria monitoring survey effort took place in the Juanita Creek basin in 2008 as a joint effort between King County DNRP, the City of Kirkland, and the Washington State Department of Ecology. The intensive study identified key subbasin areas in need of further action. Similar intensive investigations took place in the Idlywood Creek and Issaquah Creek basins in 2010. Follow up on action items identified in these basins will continue in 2011 using new microbial source tracking analysis methods available through the King County Environmental Lab.





Fecal Bacteria at Large Lakes Swimming Beaches
2010 Findings
Click to download the PDF version.

Cyanobacteria Toxicity Testing at Large Lakes Swimming Beaches

About this indicator: King County wants to maintain the safety of lakes for all beneficial uses. Certain species of freshwater cyanobacteria (bluegreen "algae") are known to make toxins occasionally that are potentially harmful to

Shoreline Master Plan Updated

Lower Duwamish Watershed

mammals. Smaller-bodied animals drinking directly from affected water bodies are particularly at risk, and there are records of pet deaths in Washington State related directly to contact and ingestion of algae blooms.

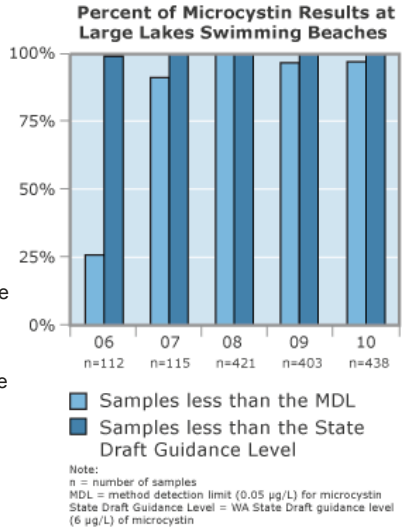
Washington State standards for potential harmful levels of cyanotoxins are currently under development. In 2008 the State set provisional recreational guidance levels of 6 µg/L for microcystin and 1 µg/L for anatoxin as warning thresholds for possible health risks from contact with lake water. Similar guidelines for several other known toxins are currently under study.

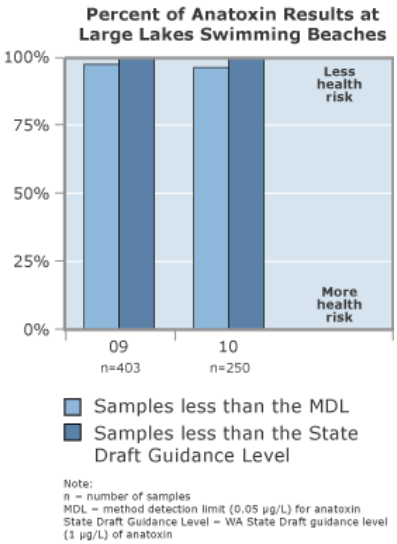
In 2003 the Major Lakes Monitoring Program began routine monitoring for the presence of microcystin at designated stations in Lakes Washington, Sammamish, and Union, also testing blooms when observed. Testing for anatoxin began in 2009. In 2009, routine sampling for cyanotoxins at offshore lake stations was discontinued due to budget cuts. However, monitoring will continue at beaches sampled as part of the Swimming Beach Monitoring Program to assess risk to recreational users.

Our indicator applies equal weighting to all data collected at the 17 beaches sampled in 2010, and data from past years was recalculated to be comparable. This environmental indicator is represented as a percent of the total samples collected at each lake having microcystin or anatoxin results below the minimum detection level and/or lower than the State draft guidance level.

Status: Over the last six years including 2010, only two samples, both of which were collected from algal scums on Lake Washington, one in 2006 and one in 2010, exceeded the State guidance level for microcystin of 6 µg/L. For anatoxin, 2010 was the second year of measurement, and all samples were below the State guidance level of 1 µg/L.

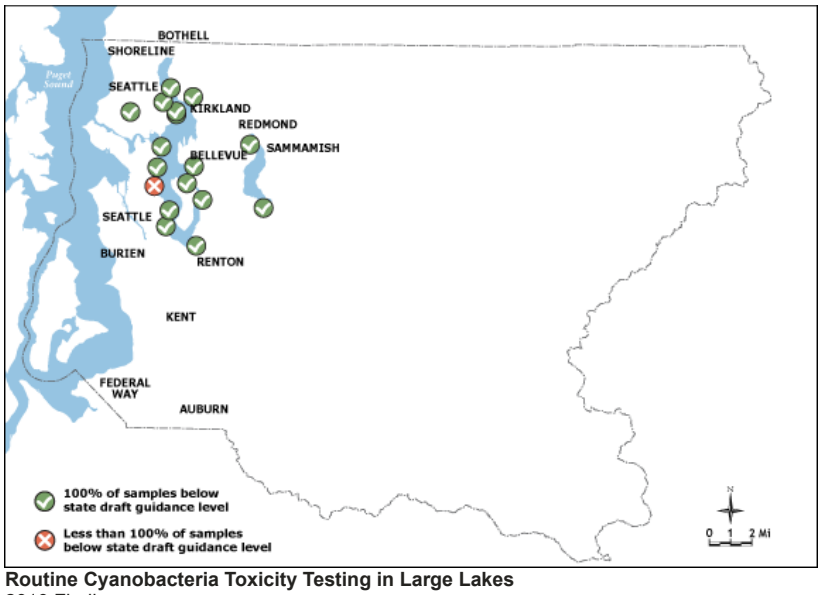
Influencing factors: Cyanobacteria blooms are more frequent in the summer and fall, although they may occur throughout the year. Increased temperatures due to regional climate changes, coupled with increased watershed development and nutrients, may lead to increased cyanobacteria blooms and possible toxin production. Cyanobacteria populations are known to respond positively to increased nutrients in lakes. Managing nutrient inputs to lakes can reduce the abundance of cyanobacteria and reduce the incidence of cyanobacteria toxicity.





Existing DNRP response: In 2011 swimming beaches will be monitored for cyanobacteria toxicity through the Major Lake Monitoring and Swimming Beach Monitoring programs. Any bloom determined to be above the proposed state threshold will trigger assessment of the health risk posed and possible action to post warnings or close the water body temporarily for use.

Priority new actions: Continued education of the public through the King County web pages will expand public awareness of cyanobacteria blooms and the resources available to investigate potentially toxicity. In 2011 King County Environmental Laboratory will expand its capacity to offer screening of two further toxins, saxitoxin and cylindrospermopsin. Water bodies with repeated dangerous levels of cyanobacteria toxins will be considered for management activity to reduce rate of incidence if available funds can be identified.

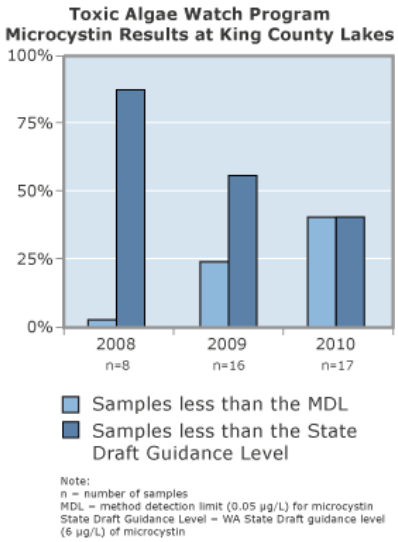


Routine Cyanobacteria Toxicity Testing in Large Lakes
2010 Findings
Click to download the PDF version.

Toxic Algae Watch at King County Lakes

About this indicator: King County wants to maintain the safety of lakes for all beneficial uses. Certain species of freshwater cyanobacteria (bluegreen "algae") are known to make toxins occasionally that are potentially harmful to mammals. Smaller-bodied animals drinking directly from affected water bodies are particularly at risk, and there are records of pet deaths in Washington State related directly to contact and ingestion of algae blooms.

Washington State standards for potential harmful levels of several cyanotoxins are currently under development. Provisional State recreational guidance levels of 6 µg/L for microcystin, and 1 µg/L for anatoxin have been set recently as warning thresholds for possible health risks from recreational exposure to lake water. Thresholds for several other known toxins are currently under study.

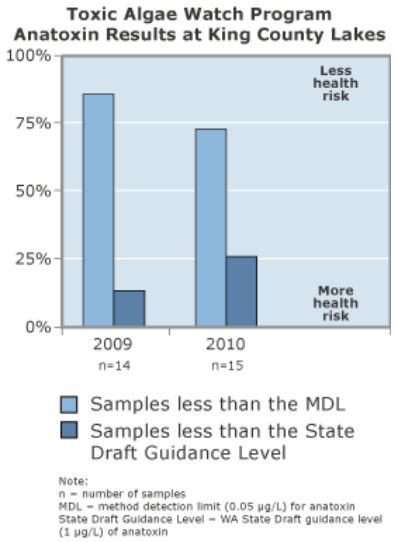


In 2007 the Washington Department of Ecology began a program to assist citizens and local jurisdictions with identification of cyanobacteria blooms and toxin testing at the King County Environmental Lab. Microcystin was targeted in 2007, and anatoxin was added in 2009. The King County Lake Stewardship Program participates in the program and has trained staff and lake volunteers to report and sample blooms. In addition, King County is collaborating in a regional study to determine the incidence and strength of toxicity in smaller lakes, which includes routine biweekly monitoring on 10 selected lakes in King County with known histories of bluegreen blooms.

This environmental indicator includes all King County lakes with samples submitted for testing in 2010 outside the routine Swimming Beach Monitoring Program and is represented as a percent of tested lakes with toxin results less than the State guidance level. Samples other than the routine project samples were collected only if a potential toxic algal bloom was reported to State or County staff. In 2010 Lakes Burien, Hicks, Steel, and Wilderness were sampled for microcystin, on multiple occasions because of persistent toxicity. The maximum value attained for each lake was the criterion for assigning status for the indicator.

Status: In 2009, the reduction of the Lake Stewardship volunteer monitoring program from 50 to 12 lakes reduced the number of volunteers looking for

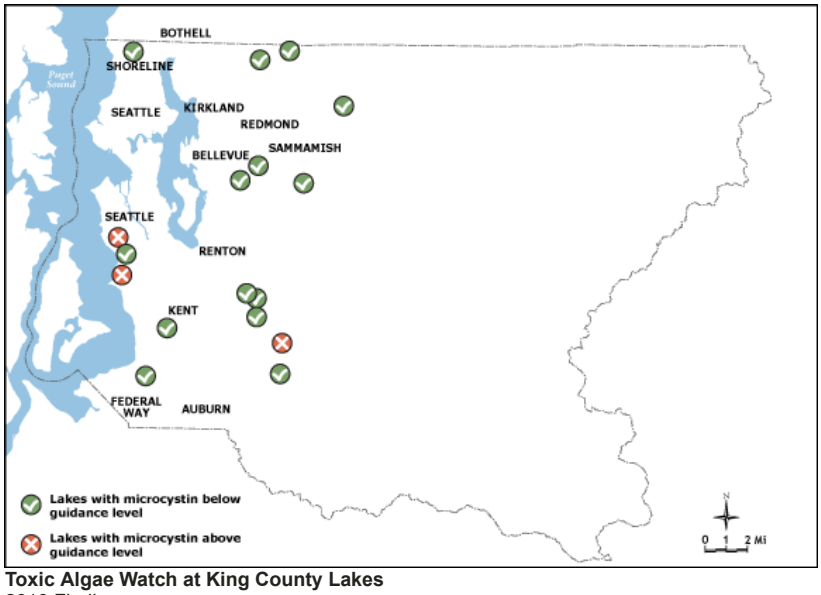
algal blooms and reporting their presence. Participation in the regional collaborative program added 10 lakes monitored routinely from June through October. In addition to routine monitoring, in 2010 seven other county lakes had at least one sample submitted under the State algae program.



Influencing factors: Cyanobacteria blooms are more frequent in late summer through early winter, although they may occur at any time. Increased temperatures from regional climate changes, coupled with increased watershed development leading to higher nutrient loading to surface waters, may encourage cyanobacteria blooms with toxin production. Managing nutrient inputs into lakes can reduce the abundance of cyanobacteria and thus reduce the incidence of cyanobacterial toxicity.

Existing DNRP response: King County has established a cooperative relationship with the Department of Ecology Algae Program and will continue to sample all blooms reported through the Lake Stewardship and Trouble Call programs. Any bloom determined to be above the proposed state threshold will trigger assessment of the health risk posed and, if warranted, action to post warnings or close the water body temporarily for use. In 2010 King County Environmental Laboratory expanded its capacity to offer screening of two additional toxins, saxitoxin and cylindrospermopsin.

Priority new actions: Continued education of the public through the King County web pages will expand public awareness of cyanobacteria blooms and the resources available to investigate potentially toxicity. Water bodies with repeated dangerous levels of cyanobacteria toxins will be considered for management activity to reduce rate of incidence if available funds can be identified.

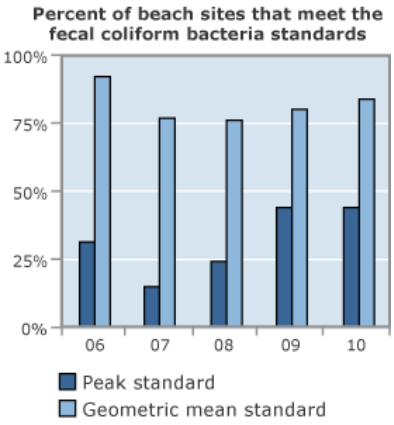


Toxic Algae Watch at King County Lakes
2010 Findings
Click to download the PDF version.

Fecal Bacteria at Marine Beaches

About this indicator: Fecal coliforms are one of many groups of bacteria that indicate the presence of fecal contamination at swimming beaches. The State of Washington's water quality regulatory standards indicate that organism counts should not exceed a geometric mean value of 14 colony-forming units (CFU) per 100 ml, and not more than 10 percent of the samples used to calculate the geometric mean should exceed 43 CFU per 100 ml. These standards are known as the geo-mean standard and the peak standard, respectively, and are intended to be protective of human health in relation to primary contact recreation (e.g. swimming) and shellfish consumption.

Comparisons to both the geo-mean and peak standard are made for each beach site monitored and reported for this indicator, using fecal coliform counts from samples collected on a monthly basis from 25 stations in 2010. The geo-mean value reflects the typical fecal coliform count at a given site, while the peak value is used to determine whether pulses of high fecal coliform counts may be present at a site.

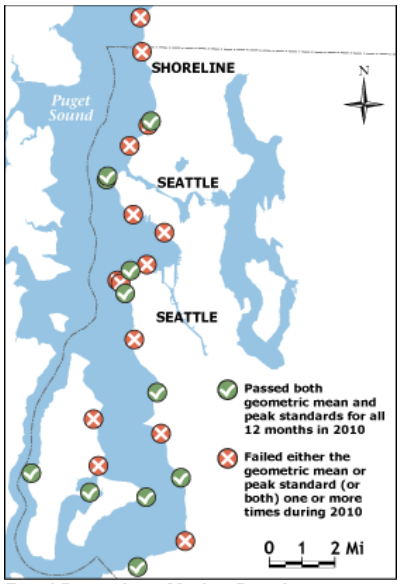


Status: During 2010, 11 of the 25 stations monitored (44 percent) met both the geo-mean and peak standards for all 12 sampling events. Twenty-one of the 25 stations (84 percent) met the geo-mean standard for all 12 sampling events, but did not meet the peak standard one or more times. Four of the 25 stations (16 percent) did not meet either the geo-mean or peak standards one or more times. The four stations that failed both the geo-mean and peak standards were located near Edwards Point, Carkeek Park, Golden Gardens Park, Alki Point, and Redondo Beach. Stations with any type of standard failure are shown on the map by the red circled X.

Influencing factors: Fecal coliform concentrations measured at marine beach sites are highly influenced by proximity to fresh water inputs, especially during rainfall events. For example, three of the five stations that failed both the geomean standard and peak standard one or more times are located near freshwater inputs. The Carkeek Park station is located near the mouth of Piper's Creek, the Golden Gardens Station is located near an unnamed creek that travels through the park's off-leash area, and the Alki Point station is located near a stormwater outfall.

Existing DNRP response: Past and on-going efforts by King County have reduced fecal contamination from most outfalls to the point that contributions from non-point sources in the area are more significant than the outfalls themselves. DNRP has little control on improving current levels of fecal coliforms near most outfall sites. An exception to this is the Vashon outfall where recent improved maintenance and operations have reduced bacteria entering the environment and an upgrade to the outfall itself (moving it further out into deeper water) should further reduce fecal contamination on nearby beaches. The beach monitoring station at Gorsuch Creek on Vashon Island is near the Vashon Treatment Plant and outfall and is monitored as part of the outfall lease with the Washington State Department of Natural Resources. This monitoring station failed the geo-mean standard 3 out of 12 months and the peak standard once in 2006. This station, in 2007, passed both the geo-mean and peak standards during all 12 months. In 2008, the Gorsuch Creek station passed the geo-mean standard during all 12 months and failed the peak standard only once, during the August sampling event following a period of significant rainfall. In 2009, the Gorsuch Creek station again passed the geo-mean standard during all 12 months and failed the peak standard only once, during the March sampling event, which occurred following six days of measurable rainfall. Once again, in 2010, the Gorsuch Creek station passed the geo-mean standard during all 12 months and failed the peak standard only once, during the April sampling event, which occurred following two days of rainfall that totaled nearly one inch.

Priority new actions: DNRP will pursue efforts to determine sources of non-point source contributions of fecal coliforms, if data warrant. These efforts will include evaluating emerging technologies in microbial source tracking, and the continued application of fecal coliform survey projects, such as the one performed at Alki Point in 2006. Potential candidates for microbial source tracking in 2011 include Redondo Beach and Golden Gardens Park. DNRP will continue to work with the State of Washington BEACH program on these trouble spots. Due to budget constraints, however, DNRP has had to reduce the beach monitoring program for 2011 from 25 to 20 stations. Those stations that have been discontinued include Edwards Point, Me-Kwa-Mooks Park, Seahurst Park, Point Robinson Park, and Lisabuela Park.



Fecal Bacteria at Marine Beaches
2010 Findings
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Technical Notes

For definitions and more detail.

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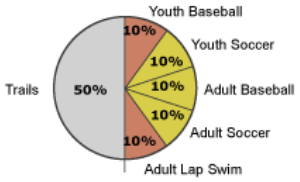
INDICATORS

USE OF PARKS AND TRAILS

2010 Rating: ⇔

About this indicator: This is a new indicator to look at utilization trends of recreation facilities and programs. Originally conceived to analyze scheduling trends of park facilities, data provided contradictions in what is understood in recreation trends. In order to report on trends a more robust analysis is required and is queued up for 2008 that will include data from public and private facility managers, and sports leagues. This data will be analyzed with multiple demographic layers to better understand what drives upward and downward trends in utilization of recreation facilities and programs.

Utilization of Parks & Trails Components



- Meets/exceeds standard or improved from prior years
- Approaching standard or steady with prior years
- Below standard or decline from prior years
- Insufficient data at this time

Status: Initial findings reveal that baseball and swimming reservations at some park facilities in the county have declined from 2005 to 2007, while soccer as increased. However, the data collected is inadequate to make broader trend statements.

Influencing factors: Some influencing factors that resulted in a decrease in utilization include fee increases and poor facility conditions. Analyzing a fuller recreational inventory with broader list of recreational providers should allow us to address influencing factors and speak to trends with more confidence.

Existing DNRP response: Some efforts to improve the trend in utilization include converting athletic fields to lit synthetic turf, continuing to offer sports grant programs that improve facilities and directing capital resources to geographic areas where there are deficits in recreation facilities.

Priority new actions: In addition to continuing the efforts noted above, other actions to be taken to better understand and improve utilization rates will include working with cities and recreation providers such as the YMCA, and Boys and Girls Club to assess membership and identify hindrances to increased membership. This will result in a richer understanding of where resources should be spent to meet recreational needs. Both the Youth Sports Facility Grant and Community Partnerships and Grants Programs are likely solutions to meeting this need.

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WHAT CAN YOU DO?

At Home

Shoreline Practices for a Healthy Lake, River or Stream

Embrace Natural Yard Care

At Work

Reduce your runoff, get a fee discount

Learn Best Practices to reduce Stormwater Pollution

Apply Integrated Pest Management in your landscaping

Related Information

Regional trail equity information

Lake Topics

King County Watersheds

Salmon and Trout Topics

Shoreline Master Program

Major Lake Data

Interactive Hydrography Map

Small Lake Monitoring Data

Shoreline Master Plan Updated

Lake Washington's Ecosystem

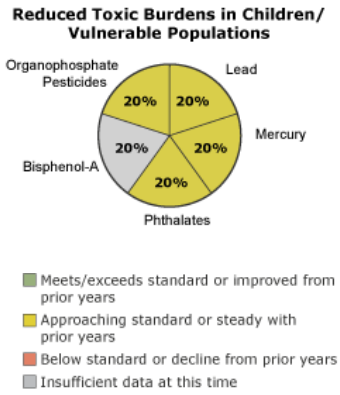
INDICATORS

REDUCED TOXIC BURDENS IN CHILDREN / VULNERABLE POPULATIONS

2010 Rating: ⇔

About this indicator: As a place-holder until such time as local data are available, this indicator is derived from 5 high-risk chemicals measured in the U.S. population by the Centers for Disease Control. "NHANES" data are extracted for the following key chemicals, for which we have reduction efforts underway or being initiated in the King County area:

- Lead
- Mercury
- Phthalate plasticizers
- Bisphenol-A
- Organophosphate pesticides



Equal weighting is given at this time. Subsequent enhancements could be derived from the Washington State Department of Health's "Washington Environmental Public Health Tracking Network," which will report local data on lead in children and adults, organophosphate and carbamate pesticides in exposed workers, and other chemicals in the future.

Status: Little data specific to King County forces us, at this time, to look to national and state data as place holders.

Influencing factors: Exposures to hazardous chemicals come from a wide variety of sources, starting in the womb from mothers' own body burdens, to foods, food containers, dust, old paint, carpets and many other products and materials. It is a very complex area, yet one we should be concerned about when we see elevated chemical levels in tests of blood, urine, bone or other tissues. Even in the face of scientific uncertainty, it behooves us to reduce such body burdens of known problem chemicals to the extent possible.

Existing DNRP response: Complementary with King County's extensive work on reduction of hazardous chemicals in the environment, we are concerned about exposures of our population to chemicals that are known to cause health and well-being problems, such as lead, mercury and other priority toxins. In particular, Public Health efforts have focused on elevated blood lead in children. Local Hazardous Waste Management Program priorities include lead, mercury, bisphenol-A, and certain pesticides including the organophosphates. In addition to finding ways for individuals to reduce their and their children's exposures, efforts include policy changes at the local and state level to eliminate these chemicals in new products and to safely remove older materials.

Priority new actions: A number of state and federal initiatives have addressed these priority toxins in the past two years. The 2010 legislature passed a new law that will require the manufacturers of mercury-containing lamps such as fluorescent bulbs to set up a take-back system which will help to reduce mercury exposures from this source. Work continues to address the chronic exposure to lead in old paint and the dust in older homes, including new federal regulations that require work done in any remodeling or other disturbance that might release more lead from old paint into the home environment be done by certified contractors. Lead and phthalates in toys and other products widely used by children are addressed in a law passed by the state legislature in 2008 and by the federal government the same year. The 2010 Washington legislature also passed a law banning bisphenol-A, an estrogenic chemical found to leach out of polycarbonate plastics and other resins, in baby products and in sport water bottles. Efforts to reduce and/or eliminate remaining uses of organophosphate pesticides continue.

What you can do:

- Choose products that do not contain these hazardous chemicals, where possible.
- If living in a home built or painted before the late 1970s, reduce exposure to dusts.
- Seek certified contractors to assist with removal of lead paint when doing any reconstruction or when dealing with peeling surfaces.

WHAT CAN YOU DO?

At Home

Properly dispose of Household Hazardous Waste

Check for and repair failed septic systems

Install Rain Barrels at home

At Work

Properly dispose of Hazardous Waste

Water irrigation

Don't Flush the Planet

Saving Water

Related Information

Take-it-Back stores equity information

King County Watersheds

King County Groundwater Management

Interactive Groundwater Map

A Survey of Ditches on County Roads For Their Potential to Affect Storm Runoff Water Quality

On-Site Runoff Mitigation with Rooftop Rainwater Collection and Use

Agricultural Waterways in King County

- Follow Integrated Pest Management and Natural Yard Care practices to minimize pesticide use.
- Safely dispose of old household hazardous wastes through local collection services.
- Contact your elected officials and express how important reduction of exposure to high-hazard chemicals is, especially to young children.

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Environmental Limitations to Vegetation Establishment and Growth in Vegetated Stormwater Biofilters

INDICATORS

ACCESS TO POTABLE GROUNDWATER

Nitrates in Groundwater on Vashon-Maury Islands

About this indicator: King County has been tracking groundwater quality on Vashon-Maury Island since 2001. Nitrate is used to track groundwater quality because it is a good indicator of changes caused by human activities, such as land-use development. King County's goal is to ensure high water quality through effective land-use and on-site septic regulations.

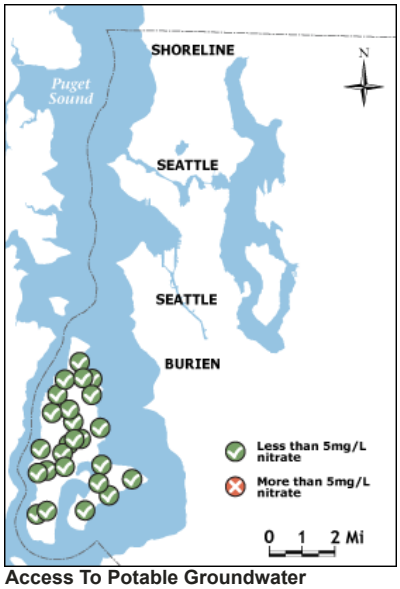
The groundwater quality indicator uses a nitrate index, defined as the maximum concentration of the annual sampling results divided by the maximum contaminant level (MCL) of Nitrate (10 mg/L). This method yields one number. The closer this index gets to 1 (or over 1) the greater concern. Until 2009 the nitrate index had been less than 0.5 since 2003. The nitrate index for 2010 is below 0.5 with a value of 0.46.

Status: Of the 25 well/spring sites monitored, all have tested below the drinking water standard (Maximum Contaminant Level, MCL of 10 mg/L) and all are less than 5 mg per liter of nitrate present. Less than half the sites tested have seen above average nitrate increases since testing began.

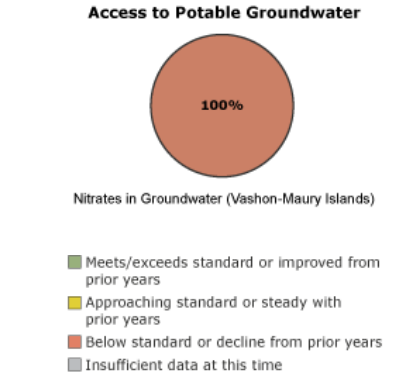
Influencing factors: Poor drainage systems, improperly maintained septic systems and improper fertilizer use can increase nitrate levels.

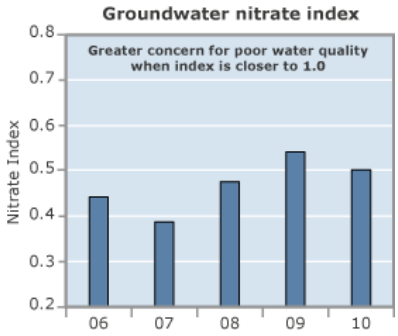
Existing DNRP response: King County plans to continue monitoring Vashon's wells and springs annually for nitrate concentrations.

Priority new actions: Additional locations have been sought to increase our understanding of island aquifers. King County intends to produce Vashon-Maury Island-wide water table, contour maps with seasonal variability that will be reported every year.



Access To Potable Groundwater
2010 Findings
Click to download the PDF version.





WHAT CAN YOU DO?

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Water irrigation

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Saving Water

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Environmental Limitations to Vegetation

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Establishment and Growth in Vegetated Stormwater Biofilters

INDICATORS

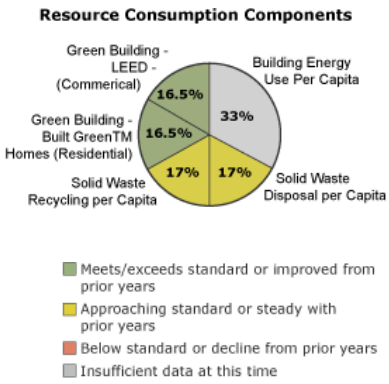
RESOURCE CONSUMPTION

2010 Rating: ⇔

About this Indicator

Every society uses the earth's natural resources. Fossil fuels, water, and other raw materials are just a few of the resources we rely on every day. We must understand and monitor our use of these resources in order to manage them fairly and with future generations in mind.

Our ability to reuse or recycle the wastes we generate reduces demand for new resources. Decreasing waste generation—through conservation or recycling—also reduces the waste we send to landfills. In 2009, single-family households in King County recycled 54 percent of their solid waste, and solid waste disposal for single-family households remained at 26 pounds per week.



Status

Targets as established in the King County Solid Waste Comprehensive Plan for both solid waste recycling and disposal were not met in 2009. The decrease in the recycling rate reflects improved measurement of non-recyclable materials placed in recycling containers which now count as disposal, not recycling. Disposal rates stayed the same as 2008 despite the continued economic downturn, perhaps due to an increase in residential waste generation, as residents spent less time at work or recreating outside the home and more time pursuing in-home activities.

Adoption of green building practices in the commercial sector continued in 2009, as shown by the number of completed projects that have been certified as LEED™ buildings by the U.S. Green Building Council (USGBC). LEED™ stands for Leadership in Energy and Environmental Design and is a nationally recognized green building rating system.

And the ratio of single-family BuiltGreen™ homes to new single-family construction permits rose from 18 percent in 2008 to 25 percent in 2009. This trend reflects both an increase in consumer demand and improved capacity of builders to achieve BuiltGreen™ performance requirements.

Influencing factors

Automotive fuel makes up the greatest proportion of total King County energy use. Land use patterns and gasoline prices are two of the factors that affect automotive fuel consumption. Reducing vehicle miles traveled and increasing fuel efficiency in vehicles are key to decreasing energy consumption in King County.

Because King County's electricity infrastructure includes six hydroelectric plants, residential and commercial sources emit fewer greenhouse gases than does the transportation sector. Energy conservation strategies and the county's leadership in residential and commercial green building have contributed to the decline in residential and commercial energy use.

Economic growth and population are two primary influences on the waste stream. As the county's population and economy grow, so does the amount of goods consumed and disposed of. Solid waste disposal levels have historically increased in prosperous times. The recent downturn in the economy may have contributed to reductions in recycling levels.

Market demand for green buildings is rising in this region, which contributes to the increased number of LEED™ certified buildings and the increased percent of new homes that are BuiltGreen™ certified in King County. Increased social awareness of the environmental benefits of recycling as well as increased regulatory requirements for recycling are factors that bear on household recycling rates.

DNRP response

Affecting the building, recycling, and disposal behaviors of King County residents requires a range of strategies, from collaborations with cities and non-profit partners to direct outreach to developers and residents. King County also delivers recycling and resource conservation education and outreach programs to schools.

WHAT CAN YOU DO?

At Home

Shoreline Practices for a Healthy Lake, River or Stream

Embrace Natural Yard Care

At Work

Reduce your runoff, get a fee discount

Learn Best Practices to reduce Stormwater Pollution

Erosion Control for Construction Sites

Apply Integrated Pest Management in your landscaping

Related Information

DNRP Budget And Organization Chart

King County Watersheds

Salmon and Trout Topics

Shoreline Master Program

Streams Water Quality Monitoring Data

Groundwater data

Normative Flow Studies

Interactive Hydrography Map

EPA: Lower Duwamish Watershed

King County encourages sustainable development and green building practices to help balance growth with protection of our region's valuable natural resources. King County also offers a variety of incentives for builders and developers to pursue BuiltGreen™ or LEED™ certification.

What you can do:

When considering building or remodeling projects

- **Learn and apply green building practices**

When making purchasing decisions, consider environmental impacts

- **Recycle more**
- **Dispose of solid waste properly**

More information about King County's Resource Consumption indicators is available by continuing to these indicators:

- **Building Energy Use**
- **Solid Waste**
- **Green Building**
  - **Built GreenTM Homes (Residential) - Green Building**
  - **Leadership in Energy Environment (LEED) certified Buildings (Commercial) - Green Building)**

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King County Benchmarks

Solid Waste Division Facilities

Household Hazardous Waste Collection Options

Green Tools

Green Building & Low Impact Development

INDICATORS

ENERGY USE

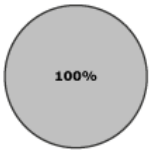
2010 Rating:

About this indicator: This is a 'place holder' for an indicator on building energy use that is currently under development.

Because energy use can have both a large upstream and downstream ecological footprint, it is an important component of the indicator of the resource consumption patterns of King County residents. Much of our household energy use is from (relatively clean) hydro-electric sources, though natural gas is used widely for residential furnaces, hot water tanks, and generating electricity during peak load periods.

If residential building energy use increases in King County, there are upstream impacts associated with water flow in rivers and extracting fossil fuels, and downstream impacts including air and climate pollution. By achieving lower per household energy use (through increasing efficiencies of buildings and appliances), and increasing renewable energy sources, our communities consume fewer resources and have a lighter impact.

Energy Use Components



Energy Use

- Meets/exceeds standard or improved from prior years
- Approaching standard or steady with prior years
- Below standard or decline from prior years
- Insufficient data at this time

King County is not a direct energy provider, and at this time does not have a current data set that depicts residential energy use patterns and trends in King County, but is developing this indicator and maps that show variations in residential energy use by neighborhood type.

Status: Residential energy use trends in King County are not yet tracked and reported on in a coordinated manner at this time, though DNRP is exploring ways of looking at both energy consumption and sourcing trends.

Influencing factors: A range of factors (that are technical, cultural, economic and political) influence energy use levels in King County homes.

DNRP response: King County Solid Waste Division promotes and supports residential green building practices through a partnership with the Master Builders of Snohomish and King Counties and by providing education and technical assistance to homeowners and developers.

Priority new actions: King County seeks to further reduce residential energy use by promoting green building practices in single and multi-family residential construction and remodeling.

What you can do:

- **If remodeling, buying or building a home, seek to achieve the energy points outlined in Built Green**

Technical Notes

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WHAT CAN YOU DO?

At Home

Be a Salmon Watcher

At Work

Volunteer for a Habitat Restoration Project

Related Information

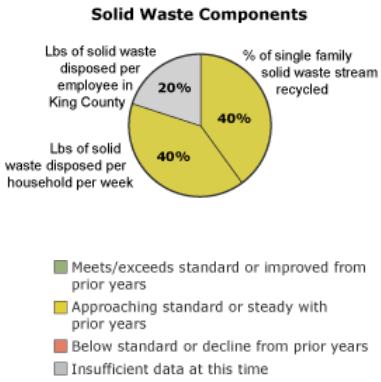
Salmon and Trout Topics

Shoreline Parcel Characterization

INDICATORS

SOLID WASTE DISPOSAL AND RECYCLING

2010 Rating: ⇔



About this indicator: Solid waste (garbage) disposal and recycling rates are significant indicators of resource consumption levels by King County residents and businesses. When a product has reached the end of its useful life and must be discarded, it must usually either be disposed of at the King County landfill or taken to a recycling facility for transformation into another product. Every product made from recycled materials reduces the need for extraction of additional natural resources, which uses much more energy and results in higher greenhouse gas emissions than using recycled materials. King County's solid waste goals call for ongoing reductions in the amount of materials disposed at the landfill per person and per employee, and ongoing increases in the percentage of discarded materials that are recycled.

Status: Performance measures reported in the Department of Natural Resources and Parks (DNRP) KingStat web site include 2010 targets for single-family recycling (55%) and solid waste disposal levels (25 pounds per household per week). The 2010 results were somewhat short of these targets, with the single-family recycling rate remaining at the 2009 level of 54%, and the single-family disposal level at the 2009 level of 26 pounds per week. Overall solid waste disposal continued the decline that began in 2008. The KingStat web site also sets targets for 2009 and 2010 for solid waste disposal per employee of 23.5 pounds per week. In 2010, garbage disposal per employee was below the target at 19.9 pounds per week.

Influencing factors: Economic conditions have a significant influence on consumption levels and therefore solid waste disposal levels. The continued economic downturn in 2010 reduced the amount of consumption, and therefore the amount of solid waste disposed and recycled. However, most of the reductions occurred in the commercial sector. Residential recycling and disposal rates remained close to or at 2009 levels.

DNRP response: As of December 2010, 97% of single-family garbage customers had food waste collection services available. In addition, in 2010, the Division's "Recycle More. It's Easy to Do." campaign included print, broadcast, and online ads resulting in over 127,000 media impressions; media events, including the "Lighten Your Load Media Challenge" and the "Pumpkin Smash" with Q13 TV; and retail partnerships with Round Table Pizza that promoted food and food-soiled paper recycling and with Bartell Drugs that provided discounts for compostable bags and countertop food waste containers.

The campaign also conducted outreach and education to residents of seven cities with recycling rates under 35%, including the cities of Snoqualmie, Kent, SeaTac, Renton, Tukwila, Kenmore and Federal Way. Outreach and education activities included providing recycling information at community events, such as the SeaTac International Festival; writing articles for community newspapers; and taking advantage of other unique educational opportunities, such as featuring the "Recycling Royalty" educational characters on Kent TV.

Priority new actions: These and other efforts will continue in 2011. In addition, the "Recycle More. It's Easy to Do." campaign will have a new focus on conducting recycling education and outreach to the county's Spanish-speaking community. The reasoning for this is that Hispanic residents represent 15.2 percent of the total population and are the fastest growing segment of the population of any race in King County. Other than English, Spanish is the most frequently spoken language in the county.

WHAT CAN YOU DO?

At Home

Be a Salmon Watcher

At Work

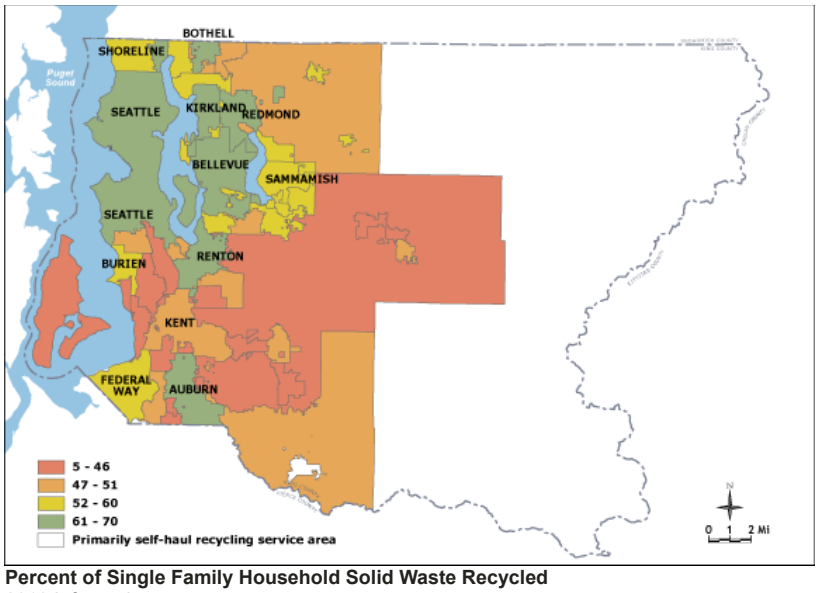
Volunteer for a Habitat Restoration Project

Related Information

WasteMobile Stop distribution equity information

Salmon and Trout Topics

Shoreline Parcel Characterization



Percent of Single Family Household Solid Waste Recycled
2010 Information
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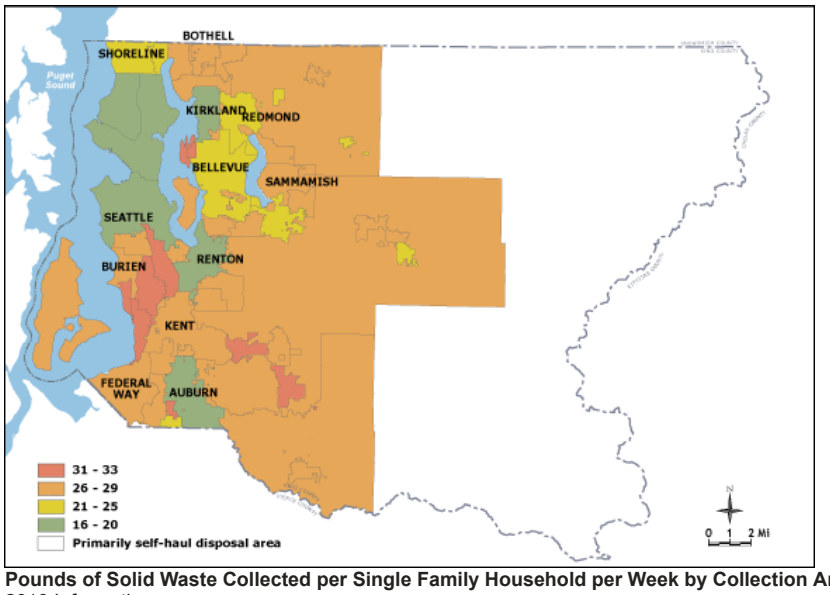

Pounds of Solid Waste Collected per Single Family Household per Week by Collection Area
2010 Information
Click to download the PDF version.

What you can do: Learn more about what you can do to reduce waste and increase recycling through the following resources.

- Garbage and recycling services
- Food waste and recycling
- Yard waste
- Electronics recycling
- Fluorescent bulb recycling
- Appliance recycling
- Textile recycling
- Recycling collection events
- Household hazardous waste collection

- **the Wastemobile**
- **Construction recycling**
- **Recycling other materials/items**
- **On-line materials exchange**
- **Green building**
- **Eco-consumer tips**

Technical Notes

For definitions and more detail.

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- Adjustments to the weightings for indicators and performance measures
- Mistakes to fix

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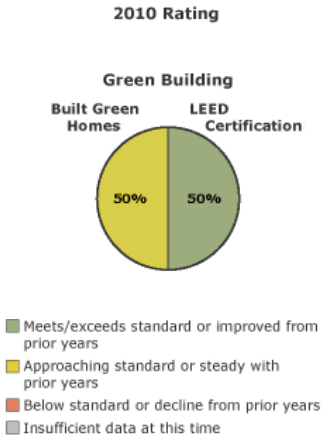
INDICATORS

GREEN BUILDING

About these indicators: These indicators represent the percent of residential units and the number of commercial buildings being built in King County that meet certain environmental standards. Since the construction, remodeling, and ongoing operations of buildings consume many resources, green building practices are an important indicator of the resource consumption patterns of King County residents. The standards being used are:

- For commercial buildings — the national Leadership in Energy and Environmental Design (LEED) Rating System™; and
- For residential buildings — the local BuiltGreen™ certification program.



The U.S. Green Building Council (USGBC) developed the LEED rating system to provide a benchmark for the design, construction, and operation of high performance commercial green buildings. LEED promotes a whole-building approach to sustainability by recognizing performance in key areas, including: sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, locations and linkages, awareness and education, innovation in design, and regional priority.

The BuiltGreen™ program is a partnership between the Master Builders Association of King and Snohomish Counties, King and Snohomish Counties, and the City of Seattle. New houses and communities using the BuiltGreen™ standards must meet criteria from the program's checklist, including those related to site and water, energy efficiency, indoor air quality, and material selection.

What you can do

As a homeowner: Learn more about purchasing a green home and green home remodeling and maintenance through the following resources:

- Purchasing a green home
- Information about building and remodeling using green materials and practices
- Hiring a green remodel home professional
- Do-it-yourself home energy audits
- Finding an energy auditor

As a builder or design professional: Build your capacity for green design and construction methods by connecting to local professional organizations, such as the Cascadia Green Building Council or the Northwest EcoBuilding Guild.

- Cascadia Green Building Council
- Northwest EcoBuilding Guild
- U.S. Green Building Council (USGBC)
- Green Building Certification Institute (GBCI)

WHAT CAN YOU DO?

As a homeowner:

Learn more about purchasing a green home, green home remodeling and maintenance by following up on the following resources:

For home energy audits 2.4MB PDF

For information about building and remodeling using green materials and practices

For purchasing a green home

As a builder or design professional: Build your capacity for green design and construction methods by connecting to local professional organizations, such as the Cascadia Region Green Building Council or the NW Eco-building Guild.

Related Information

Salmon and Trout Topics

Shoreline Parcel Characterization

Solid Waste Division (SWD)

Ratio of single-family residential units certified annually by BuiltGreen™ at the 3-to 5-Star levels to total new construction permits issued annually for single-family units county-wide

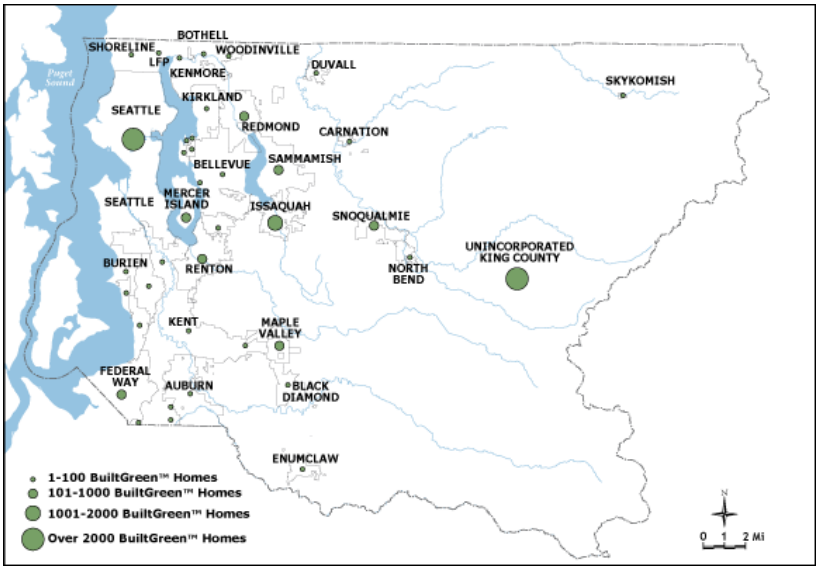
About This Indicator: The BuiltGreen™ Program is a partnership between the Master Builders Association of King and Snohomish Counties, King and Snohomish Counties and the City of Seattle. New homes being constructed to BuiltGreen™ standards must meet criteria from the program's checklist, which includes categories in site and water, energy efficiency, indoor air quality and material selection.

2009 Results: : 25 percent of new homes are BuiltGreen™ 3-5 Star

2010 Results: 21 percent of new homes are BuiltGreen™ 3-5 Star

Influencing Factors: The BuiltGreen™ Program's share of certified homes relative to total residential building permits fell from 25% in 2009 to 21% in 2010. This trend reflects a decrease in single-family construction due to the economic downturn.

Strategy Going Forward: In 2011, due to the continued economic downturn, BuiltGreen™ will focus on multifamily housing certifications. Current trends indicate an increase in this housing type, particularly apartment rentals. This focus will align with King County's equity and social justice efforts which seek to promote housing for all people that is safe, affordable, high quality and healthy.



Number of single family 3-to 5-Star Built Green™ certified homes in King County 2000 - 2010
Click to download the PDF version.

Number of buildings in King County achieving a Leadership in Energy and Environmental Design (LEED) rating

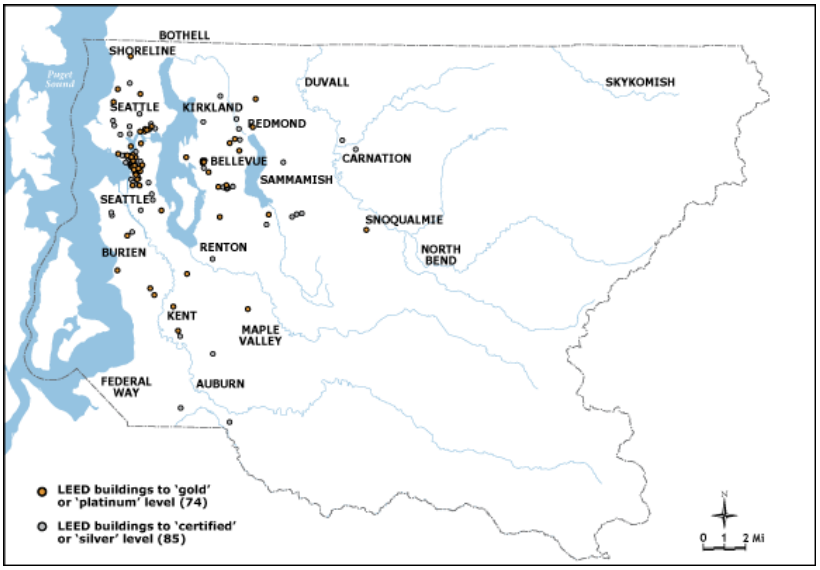
About this indicator: This indicator presents the number of commercial buildings built in King County in 2010 that achieved a Leadership in Energy and Environmental Design (LEED) rating. The U.S. Green Building Council (USGBC) developed the LEED rating system to provide a benchmark for the design, construction and operation of high performance commercial green buildings. LEED recognizes performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality.

2010 Results: 52 (34 Seattle, 18 rest of King County)

Influencing Factors: Green building practices are influenced by increased consumer demand; public and consumer awareness; land use and building code policies; incentives; technical assistance; and increases in the number of local companies and practitioners skilled in the design, construction and maintenance of high performing green buildings.

Strategy Going Forward: In 2011, the King County GreenTools green building program will offer technical assistance to support the development of more environmentally-friendly and healthy LEED buildings, such as training on the use of the LEED v3 rating system, training on how to conduct eco-charettes to help project teams and managers better design projects to achieve more LEED credits and higher rating levels, and a tour of local LEED Platinum projects to promote and learn from existing successful examples.

Technical Notes: The results for this indicator include 34 buildings in the city of Seattle and 18 in the rest of King County; however, because some LEED building owners choose to keep their registration information confidential, there may be some LEED buildings that are not included in this count.



LEED Certified Buildings
2003 — 2010
Click to download the PDF version.

Technical Notes

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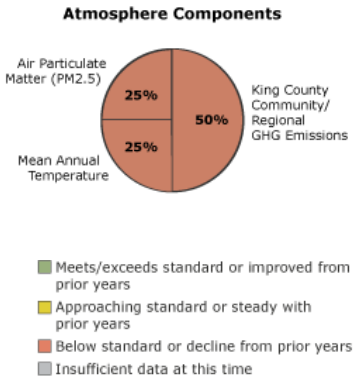
INDICATORS

ATMOSPHERE

2010 Rating:

Indicator



This atmosphere indicator considers greenhouse gas (GHG) emissions, mean annual temperature and air quality (air particulate matter (PM2.5)). The GHG emissions data is from emissions estimates completed by the Puget Sound Clean Air Agency. The GHG reduction target was established in the 2007 King County Climate Plan. The scope of the GHG measure is geographic King County — including all of the households, businesses and vehicle travel. The temperature measure shows long term trend data for mean annual air temperature at SEATAC. The air quality measure is for levels of small particulate matter in our air as sampled at monitoring sites across King County.

As you can see from the pie chart, the priority emphasis is on reduction of greenhouse gas (GHG) emissions. While fine particulate matter (PM 2.5) is our number one air quality concern to protect public health, GHG emissions causing global warming will have unprecedented environmental, social and economic impacts. In fact, global warming is fast becoming the pre-eminent issue of our time both locally and globally. The temperature indicator shows the long term trend of warming in Puget Sound.

Within King County we are expecting a 50 percent loss of snowpack within 50 years. This reduction of snow (and snow-water equivalent) will adversely affect forests, farms, fish, hydropower and drinking water availability. There will be an increase in severe weather patterns causing more intense droughts and floods. There will be an increase in human disease such as West Nile virus from increase in mosquito infestation. Forests will be increasing at risk from Pine Beetle infestation and forest fires, even in wetter Western Washington. Sea level rise will erode coastline and affect infrastructure along our coasts. These are impacts just within King County. Additional impacts across the state, the country and the globe will add addition stresses to our economy and quality of life.

More information about King County's Greenhouse Gas Emissions, Mean Annual Temperature and Air Particulate Matter (PM 2.5) is available by continuing below to these indicators:

- **Green House Gas Emissions**
  - **GHG — King County Operational**
  - **GHG — DNRP**
- **Mean Annual Temperature**
- **Air Particulate Matter (PM 2.5)**

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WHAT CAN YOU DO?

At Home

Use less energy more efficiently

Heat smart with wood stoves and fireplaces

Help Clean the Air Around Puget Sound

At Work

Help Employees Bus Commute

Bike Commute

Related Information

DNRP Budget And Organization Chart

King County Executive Global Warming Initiative

2005 Climate Change Conference Results

Puget Sound Clean Air Agency

Puget Sound Maritime Air Emissions Projects

Maritime Pollution in the Puget Sound

Puget Sound Maritime Air Emissions Study Results

INDICATORS

GREEN HOUSE GAS EMISSIONS

2010 Rating: ↓

GHG Emissions for all King County Residents and Businesses

About this indicator: Greenhouse gas (GHG) emissions such as carbon dioxide and methane are the primary drivers of human caused climate change. The KingStat Atmosphere Indicator focuses on measuring progress towards reducing all types of GHG emissions from all activities attributable to King County residents, businesses, and other entities. For detailed information about how King County Government is reducing emissions associated with government operations, see the **KingStat Climate Protection Performance Measure**.

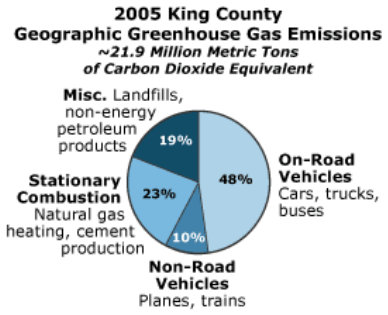
Drivers: In King County, greenhouse gas (GHG) emissions are primarily caused by fossil fuel use (gasoline and diesel) for transportation and to a lesser but significant extent to heat our buildings (natural gas and heating oil). Combusting fossil fuel (e.g. coal) to produce electricity is also a source of GHG emissions, although in King County, because of the prevalence of hydropower, this is less of a source than in many other regions. Other important sources include methane emissions from landfills, wastewater treatment, and livestock. King County is also responsible for emissions that occur outside of region in production and transport of goods and services that are consumed in the region.

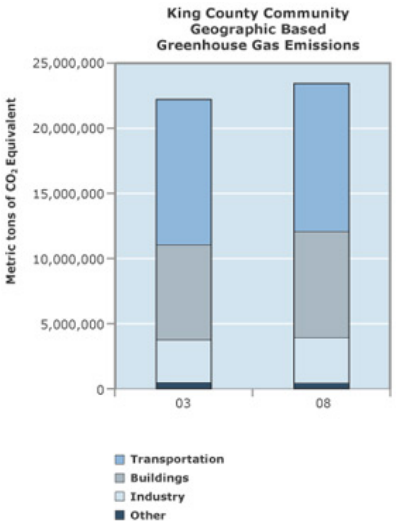
Status: Based on a geographic emissions estimate, King County region (all residents and businesses) produces approximately 22 million metric tons of carbon dioxide (CO2) equivalents annually. This is about one quarter of Washington State's emissions and roughly 0.3% of the United States' emissions. As of 2005, per person annual greenhouse gas emissions were: ~12 tons in Seattle, ~13 tons in King County, about ~14 tons statewide, and ~ 24 tons across the United States[1]. Energy and climate mitigation efforts have slowed growth in GHG emissions, but in general they continue at unprecedented levels.

However, there are important reasons for optimism. For example, the City of Seattle (which is responsible for roughly 30% of King County's overall emissions) reported emissions in 2008 to be 7% below 1990 levels. They attribute this reduction to several factors, such as offsetting the emissions generated by Seattle City Light's electricity production through innovative emissions reduction projects. They also report that conservation efforts, in conjunction with many residential and commercial users switching from heating oil to lower carbon intensity natural gas, contributed to this progress.

Despite these successes, transportation related emissions in King County continue to rise; this trend, illustrates the significant challenge that King County is facing to reduce its emissions. Additionally, total energy usage in King County, as reported by Puget Sound Energy and Seattle City Light, has increased over the last several years.

In March 2010, King County issued a Request for Proposals to assist the County, the City of Seattle, and the Puget Sound Clean Air Agency in developing updated King County community greenhouse gas (GHG) emissions inventories and a framework and methodology for measuring and





WHAT CAN YOU DO?

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Heat smart with wood stoves and fireplaces

Calculate your GHG Emissions

Reduce Your GHG Emissions

Develop Density

At Work

Help Employees Bus Commute

Bike Commute

Related Information

King County Executive Global Warming Initiative

2005 Climate Change Conference Results

Puget Sound Clean Air Agency

Biodiesel Buses

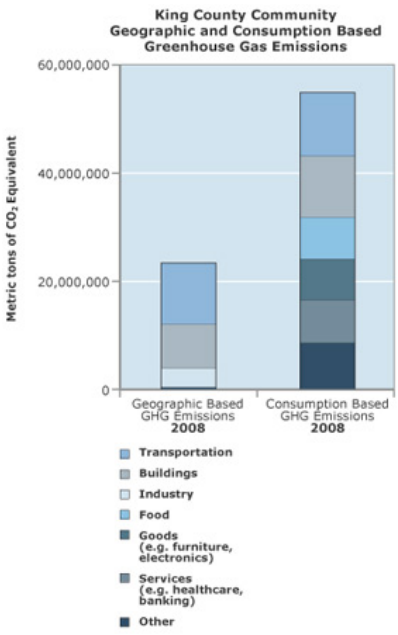
King County Global Warming Action Plan

Green house emmisions challenge

Northwest Natural Yard Days

Puget Sound Clean Air Agency's climate protection information

assessing progress toward meeting County GHG reduction goals. Tasks of this project will include: 1) a geographic-based 2008 emissions inventory for the King County community; 2) a consumption-based 2008 inventory for King County community; and 3) Community Emissions Measurement Framework. This project will inform individuals, businesses, and local governments about the most important sources of community emissions and provide important new information relevant to addressing these sources.



GHG Reduction Goals for the King County Region:

2008 King County Comprehensive Plan

- Collaborate with other local governments, businesses, and residents in the region to reduce greenhouse gas emissions throughout the region to 80 percent below 2007 levels by 2050

Washington Law, as described by ESSB 2815, effective 6/12/2008

- By 2020, reduce overall emissions of GHGs in the state to 1990 levels
- By 2035, reduce emissions to 25% below 1990 levels
- By 2050, reduce emissions to 50% below 1990 levels

Existing response: The **2009 King County Climate Report**, transmitted by King County Executive Dow Constantine on February 1, 2010, documents actions during the last year that implement the 2007 King County Climate Plan. It also gives an overview of anticipated activities for 2010. The report outlines progress and plans in four key areas: leadership, mitigation of greenhouse gas emissions, adaptation to prepare for the impacts of climate change and assessment. A few of the many accomplishments in 2009, and plans for 2010, are highlighted on the **King County Climate Change website**.

Available: **Download a PDF version of the 2009 King County Climate Report**.

Technical Notes

For definitions and more detail.

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INDICATORS

AIR QUALITY

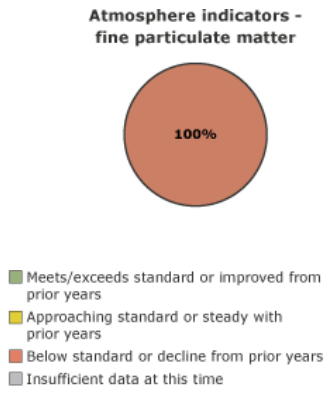
2010 Rating:

Air Particulate Matter (PM 2.5)

About this indicator: Fine particulate matter less than 2.5 micrometers in diameter (PM2.5) contributes to increased respiratory disease, decreased lung function, heart problems, and premature death. PM2.5 is a main air pollutant of concern in the Puget Sound region.

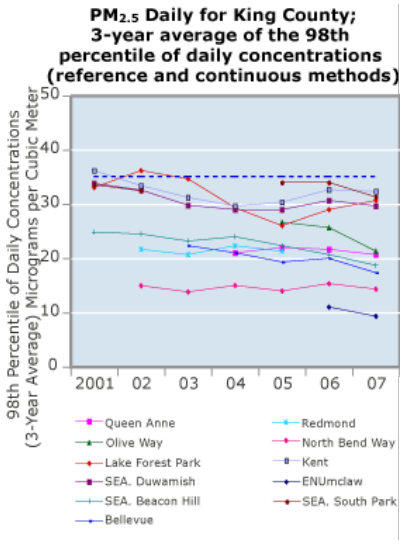
Drivers/influencing factors: The greatest contributing source to PM2.5 in the Puget Sound area is wood smoke, especially from fireplaces and woodstoves, in winter months when PM2.5 concentrations are highest. While wood smoke contributes the greatest mass of PM2.5, particulate matter from diesel engines is the most highly toxic. The Puget Sound Clean Air Agency reports that PM2.5 emissions in newly designated non-attainment areas were approximately 27% caused by mobile sources.

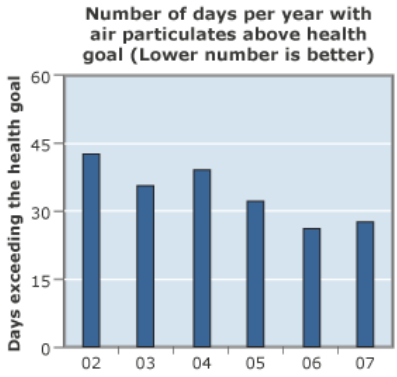
Status: In 2006 the EPA strengthened the PM2.5 standard; these more stringent standards have been recently violated in the Puget Sound region.



Existing response: The Puget Sound Clean Air Agency has several programs designed to reduce PM2.5 emissions, including programs specifically targeted to address wood smoke. The agency enforces burn bans in winter months, when weather conditions contribute to high PM2.5 levels. The agency and its partners perform outreach and education to encourage people to use cleaner burning practices and upgrade older wood-burning stoves and fireplaces. Other programs include evaluating and expanding the areas where outdoor burning is prohibited and the agency's Diesel Solutions program, to reduce diesel engine emissions through voluntary, incentive-based projects.

Priority new actions: The Washington State Department of Ecology, in conjunction with the Puget Sound Clean Air Agency, must develop an attainment plan for PM2.5 nonattainment areas by October 2012.





WHAT CAN YOU DO?

At Home

Use less energy more efficiently

Heat smart with wood stoves and fireplaces

Cascade Bicycle Club

EPA air quality frequently asked questions

At Work

Help Employees Bus Commute

Bike Commute

Related Information

Puget Sound Clean Air Agency

General information on fine particulate matter

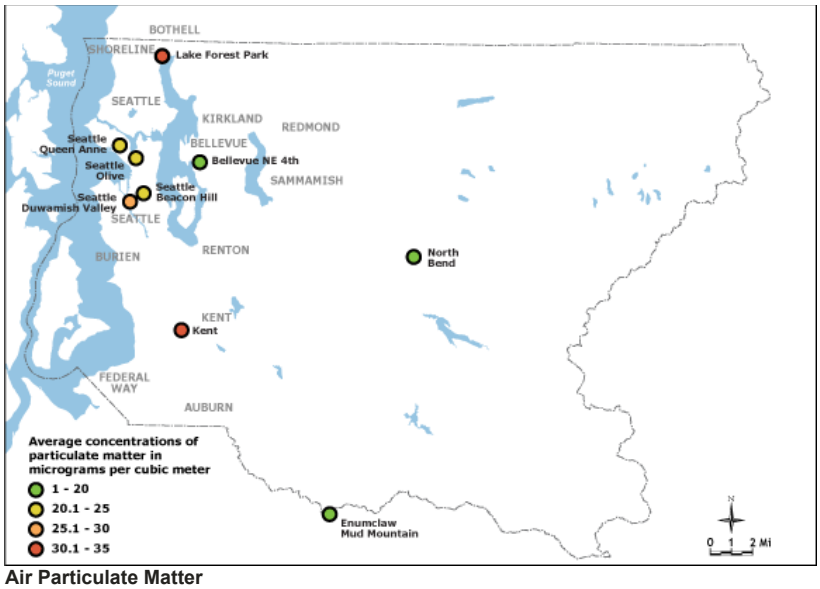
Information on diesel emissions reductions

The Puget Sound Clean Air Agency's Annual Data Summary (2005)

How can I help clean our air?

Information on wood smoke and health effects

How are ports and partners reducing emissions?



Air Particulate Matter
2007 Findings
Click to download the PDF version.

Technical Notes

For definitions and more detail.

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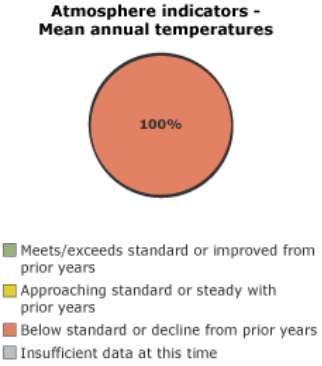
INDICATORS

TEMPERATURE

2010 Rating: ↓

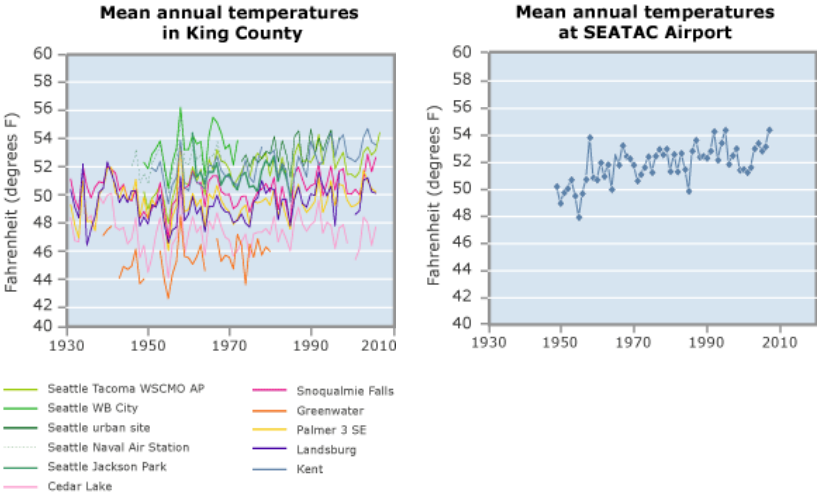
Mean Annual Temperature



About this indicator: This indicator is the average of the last ten years' annual temperature in the Puget Sound lowlands as compared to the near term historical average temperature (the average from 1971 to 2000). This indicator is chosen as a rough proxy to track the impact of global warming and climate change at the regional level.

Drivers/influencing factors: Many regional climatic factors control changes in annual temperatures. For example, cyclic and natural changes in oceanic sea surface temperatures can result in persistent weather patterns such as El Nino and La Nina that can last from months to years. In King County, La Nina weather patterns, for example, usually result in cooler and wetter than average weather conditions. In addition to natural causes of climate variability, human caused climate change driven by greenhouse gas emissions (such as carbon dioxide) are a strong control on global and local climate. Because there is significant year to year natural variability in average temperature, and because this indicator is focused on measuring the human caused impact on regional climate, a 10 year average temperature is used.

Status: The ten year running average for the Puget Sound Lowlands (1999-2008) is 0.45ºF above the 1971-2000 average. Overall, five of the 10 warmest years on record for the contiguous U.S. have occurred since 1999, part of a five decade period in which mean temperatures for the contiguous U.S. have risen at a rate near 0.4ºF per decade. This data indicates that the trends observed for the region is consistent with U.S. and national trends of a warming and changing climate system.



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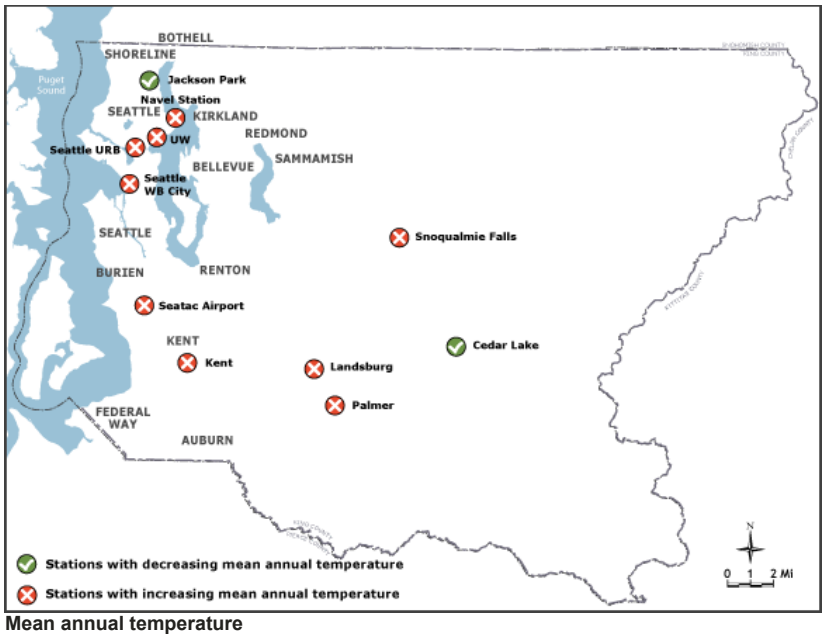

Mean annual temperature
2007 Findings
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Technical Notes

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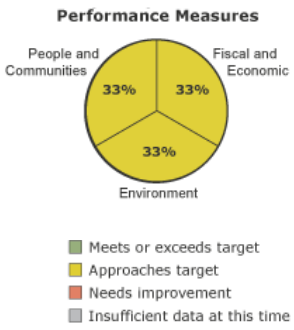
PERFORMANCE MEASURES

DNRP 2010 PERFORMANCE MEASURES

2010 Rating:

These measures present the degree that DNRP programs are achieving their stated targets. Because of the breadth of DNRP programs, the department's goals and performance measures address topics that are environmental, social and fiscal in nature.

DNRP distinguishes between environmental indicators and performance measures based on the degree of the agency's influence. Measures that have many contributing factors are included as indicators, while measures that are strongly influenced by DNRP policies, programs, and practices are considered performance measures.



Performance Measures

DNRP organizes performance measures under its three goal areas:

- Environment
- People and Communities
- Fiscal and Economic

Under each goal are four to six objectives, or roll-up measures, each of which has a pie chart for a quick summary of performance in this area. Below the summary/roll-ups are details of individual measures and, where relevant, technical notes with specific information about data sources or anomalies with the measure information.

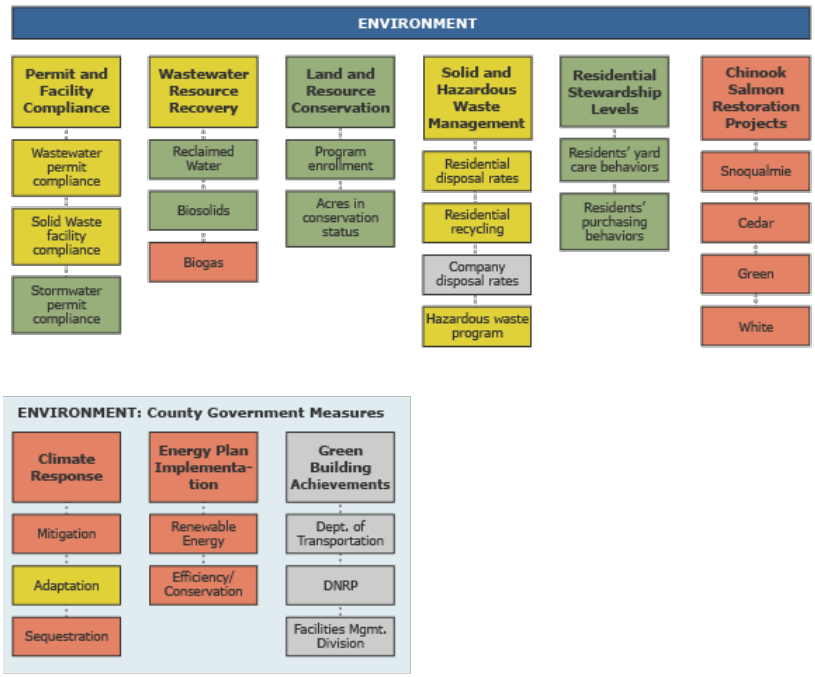
Results on DNRP performance measures use a simple red/yellow/green/gray designation, where:

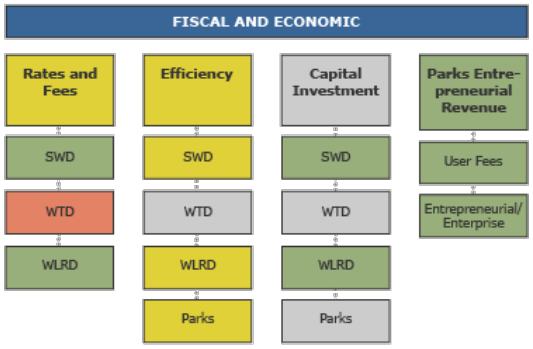
- Green signifies meeting or exceeding a stated target;
- Yellow signifies results within 10 percent of the target;
- Red signifies the need for improvement; and
- Gray signifies insufficient data at this time.

Related Information

- DNRP Budget And Organization Chart
- DNRP Annual Report
- Natural Resource Lands
- Solid Waste Recycling
- DNRP Equity

DNRP 2010 PERFORMANCE MEASURES





Download PDF version of KingStat Performace Measures site-map 68Kb

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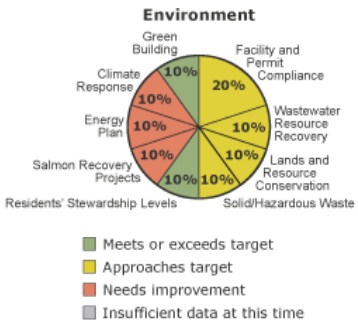
PERFORMANCE MEASURES

ENVIRONMENT

2010 Rating: ⇔



This roll-up measure summarizes the degree DNRP is achieving its **Environmental goal**:

Minimize waste and emissions, maximize resource re-use and recovery, and protect and restore habitats, ecological functions and aquatic conditions.

2010 results

DNRP's rating for the performance measures that support this goal is yellow — signifying results are within 10 percent of target for this goal.

Areas under this goal where DNRP performed well:

- Green Building Achievements
- Residents' stewardship levels.

Areas under this goal where DNRP performance approaches target:

- Permit and Facility Compliance
- Wastewater Resource Recovery
- Solid/Hazardous Waste Management
- Land and Resource Conservation

Areas under this goal where DNRP performance needs improvement:

- Climate Response
- Energy Plan
- Chinook Salmon Recovery Projects

Key influencing factors

The Elected Leadership in King County and the Water and Resources Division made great strides forward with the creation of the King County Flood Control Zone District and the adoption of a comprehensive flood risk reduction plan.

Land and resource conservation targets were hit through enhanced purchasing practices and more effective conservation outreach. Successes within the land and resource conservation measures are due in part to the relationships that rural and resource program staff have built with forest and farm landowners.

Cooperative relationships with cities and investments in new trails allow such a high percentage of residents to have easy access to King County's 175 miles of regional trails.

Strategies going forward

DNRP will continue to improve processes and systems to ensure its wastewater plants, transfer stations and landfills, and the stormwater program in unincorporated King County meet or exceed regulatory requirements. DNRP will seek to increase the monitoring of the environmental conditions that our programs seek to improve, which will help ensure permit compliance.

Over the next few years, DNRP will develop and implement new ways of tracking progress on capital projects, including the use of scorecards for capital project performance, which will include address features such as energy efficiency and other sustainability issues.

Related Information

DNRP Budget And Organization Chart

Brightwater Project

Interactive Stormwater Projects Map

With the new King County Flood Control Zone District in place, DNRP will implement its flood hazard management plan to advance both public safety goals and ecological improvements.

DNRP's land and resource conservation efforts will expand to better use all of the tools available, including public acquisition of key parcels and promotion of enhanced stewardship on private lands, plus innovative solutions such as King County's nationally acclaimed transfer of development rights program.

More information about King County's Facility/Permit Compliance, Land and Resource Conservation, Regional Trail Access, Flood Safety, and Capital Investment is available by continuing to the pages for these performance measures:

- **Facility/Permit Compliance**
- **Wastewater Resource Recovery**
- **Land and Resource Conservation**
- **Solid/Hazardous Waste Mgt**
- **Residents Stewardship**
- **Chinook Salmon Recovery Projects**
- **Climate Protection**
- **Energy Plan Implementation**
- **Green Building Achievements**

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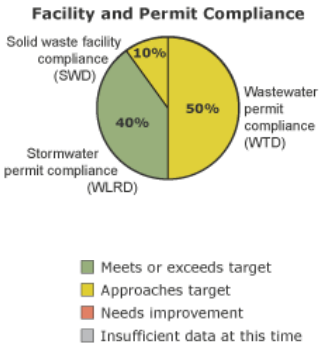
PERFORMANCE MEASURES

FACILITY/PERMIT COMPLIANCE

2010 Rating: ⇔

About this measure: This is one of DNRP's highest priority measures, as it shows how facilities and operations are performing across an array of regulated activities. Performance requirements for transfer stations, landfills, and storm and wastewater facilities are detailed, complex and critically important for protecting the health of our environment and our public health and safety.

DNRP tracks and reports on the degree regulatory requirements are met or exceeded through a variety of mechanisms, including treatment plant effluents sampling, air emissions monitoring, and on-site inspections and audits. To serve various programs, DNRP has environmental research scientists on staff and maintains an award winning water quality laboratory for analytical support.



Wastewater Treatment Division (WTD)

WTD Air Quality Permit Compliance

About this measure: This measure looks at the percentage of compliance with air quality limits and conditions as regulated via Puget Sound Clean Air Agency (PSCAA) permits and orders of approvals on WTD's regional wastewater plants and offsite stations.

2009 Results: 94.5%

2009 Target: 100%

2010 Target: 100%

Influencing Factors: Establishing achievable conditions/limits via PSCAA permit process, quality of design and installation of chemical systems and control equipment, on-going condition of control equipment, balancing maintenance response based on level of redundancy and inventory parts, providing appropriate O&M training, clear and full understanding of all limits and operating conditions, and staying abreast of changing regulations.

Strategy going forward: WTD created an air quality compliance team to oversee and facilitate compliance issues at all WTD facilities. This compliance team will continue an active role in responding to permit compliance requirements for the Brightwater Treatment Plant's air quality control program. An Air Quality Environmental Management System (AQ-EMS) was developed and approved by PSCAA for South Plant, to enhance the implementation of compliance, odor control, and best practices initiatives, including identifying training and safety issues. WTD will continue to evaluate modifications of equipment and operating changes to improve air quality and improve reliability of equipment operation at treatment plants. In 2011 work will continue on implementation of the South Plant waste gas burners.

WTD Effluent Limit Compliance (NPDES Permits)

About this measure: This measure addresses the percentage of compliance with National Pollution Discharge Elimination System (NPDES) permit limits for the county's major regional wastewater treatment plants.

2009 Results: 99.9 percent. West Point Treatment Plant achieved 99.8 percent compliance and the South Treatment Plant achieved 100 percent compliance with NPDES permit effluent limits in 2010.

Both treatment plants are anticipated to receive the Platinum Peak Performance Awards from the National Association of Clean Water Agencies (NACWA) for 2010.

2010 Target: 99.9 percent

2010 Target: 100 percent

Related Information

Wastewater
Wastewater facility distribution equity information

Wastewater Treatment Division

Solid Waste
Solid Waste Division

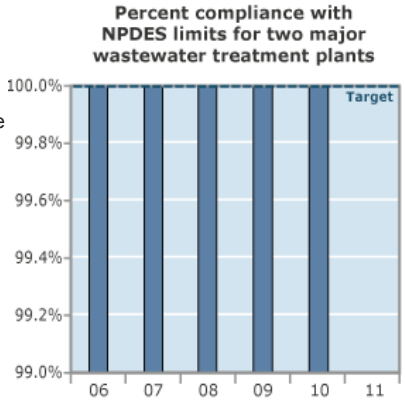
Stormwater
Drainage complaints equity information

Stormwater Topics

Interactive Stormwater Projects Map

Ecology's link to 2007 Municipal Stormwater NPDES Permit

2011 Target: 100 percent



Influencing factors: The Washington State Department of Ecology issued new NPDES permits to both plants in 2004. South Plant's limits remained the same while West Point's limits included more stringent requirements and some technical reporting changes. WTD received new permits for West Point and South Plant in 2009.

Strategy going forward: All WTD sections contribute strategies to ensure success in NPDES compliance, such as: performing preventive maintenance, providing employees with training and tools, developing asset management plans for major equipment maintenance, and many other coordinated NPDES compliance efforts across the division.

Number of NPDES Permit Violations Resulting in Enforcement Actions — Treatment and Conveyance

About this measure: This measure accounts for the number of permit violations resulting in enforcement actions taken against WTD by the Washington Department of Ecology (WDOE) for violations of our NPDES permit related to wastewater treatment and conveyance. This includes any violations resulting in Notices of Violation (NOV) or fines received from Department of Ecology. NOV's or fines can result from sewage overflows, ongoing operational problems which lead to NPDES non-compliance, failure to comply with reporting requirements or other permit non-compliance issues.

2010 Results: 1

2010 Target: 0

2011 Target: 0

Influencing Factors: June 16, 2010 we received a Notice of Penalty issued for violations of permit conditions related to discharge and monitoring requirements at four CSO Treatment Plants for the period (Sept 2009-April 2010). The incidents where either permit limit violations or missed sampling events. Measures were taken immediately after each event to address issues that contributed to non-compliance.

Strategy going forward: Additional staff training has been implemented and staffing has been adjusted to allow for staff to arrive at these facilities quicker during rain events. Operations modifications have been made and several projects have been undertaken or are currently underway to improve disinfection and sampling reliability.

Number of NPDES Construction Stormwater Permit Notices of Violation

About this measure: The Department of Ecology requires NPDES Construction Stormwater Permits for any project that will disturb more than an acre of land by clearing, grading, excavating or stockpiling of fill material, if there is any possibility that stormwater could run off the site and into surface waters. This measure accounts for any WTD violations of its NPDES Construction Stormwater Permits.

2010 Results: 0

2010 Target: 0

2011 Target: 0

Influencing Factors: WTD strives to maintain compliance with its NPDES Construction Stormwater Permits by monitoring construction sites and ensuring that soils are properly covered or handled to prevent erosion or sediments from polluting surface waters via stormwater runoff.

Strategy going forward: WTD will continue to closely monitor construction sites and maintain protocols for prevention of stormwater pollution on all construction sites. Compliance staff will work with construction managers to respond to problems and develop mitigation strategies and site housekeeping measures to prevent uncontrolled sediment and stormwater runoff from construction sites.

Percent compliance with reclaimed water permits

About this measure: This measure looks at the percentage of compliance with reclaimed water permits at WTD's regional wastewater plants. The Department of Ecology issues reclaimed water permits to entities that generate reclaimed water. Permittees have the exclusive right to the distribution and use of the water. Permit conditions govern the location, the rate, the water quality and the purpose of use. There is currently only one active reclaimed water permit for WTD's South Treatment Plant.

2010 Results: 99.4%

2010 Target: 100%

2011 Target: 100%

Influencing Factors: King County's reclaimed water quality meets strict Class A standards set by the state departments of Health and Ecology. While there were no permit exceptions in 2009, two key factors that can lead to exceptions, such as occurred in 2008, include the following. One is an operational issue, in that compliance with permit levels for turbidity and pH are strongly dependent on reliability of the control system and the on-line instrumentation. One of the exceptions at South Plant in 2008 was due to the failure of a chlorine residual analyzer. The other typical problem involves disinfection failures due to other chemicals interfering with adequate levels of bleach, or a faulty chlorine residual monitor resulting in inadequate disinfection. These can lead to exceeding the maximum daily value allowed for total Coliform forming units (cfu) in the reclaimed water.

Strategy going forward: King County invests in research and demonstration projects that support the safe and effective use of reclaimed water in our region. An assessment study is underway at South Plant, looking at ways to increase the plant's capacity for reclaimed water and improve the ability to reliably meet permit standards.

Water and Land Resources Division (WLRD)

Surface water management permit compliance (NPDES stormwater)

About this measure: The Washington State Department of Ecology is responsible for administering the National Pollutant Discharge Elimination System (NPDES) permit to ensure compliance with the federal Clean Water Act. Permit. The permit strives to address the negative impacts of stormwater system discharges on natural resources by requiring facility maintenance, controls on development, code enforcement, retrofit projects, public education and outreach, and scientific sampling and analysis of the water quality of surface waters. This measure gauges compliance with eleven categories in the permit for unincorporated King County.

2010 target: 100 percent compliance

2010 results: 100 percent compliance

2011 target: 100 percent compliance

Influencing factors: The more developed an area is the faster stormwater runs off into creeks, streams and rivers. This stormwater runoff carries pollutants into these water bodies and eventually to Puget Sound. Both increased flows and dirty water can cause damage to natural habitats, affect water temperature and receiving water quality which can negatively affect fish and wildlife populations.

The 2007 NPDES permit requirements are stringent; and compliance with many components is being held to specific timelines.

Strategy going forward: In 2010, King County expanded its efforts to map and assess stormwater system discharges to identify and correct water quality problems. Also, WLR received a $ 3 million dollar 3-year Environmental Protection Agency grant to develop a stormwater retrofit plan that identifies the amounts, types, and costs of stormwater retrofits necessary to achieve various flow and water quality targets. This effort is in keeping with the 2010 effort to seek and use grant funding to identify and implement stormwater retrofit projects in older developed areas that have no stormwater controls.

Solid Waste Division (SWD)

Percent of Solid Waste facility inspections that meet or exceed regulatory requirements: health, stormwater and air quality.

2010 Weighted Results: 99.10%

2010 Weighted Target: 100%

2011 Weighted Target: 100%

Percent of Health Department inspection reports that do not result in a notice of violation for solid waste facilities.

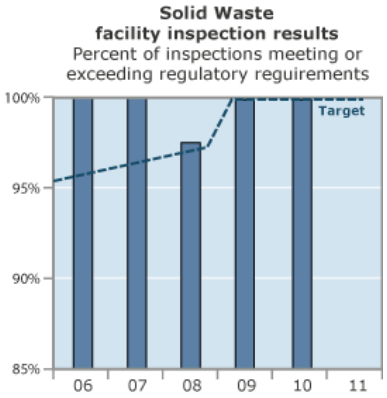
2010 Results: 100%.

2010 Target: 100%.

2011 Target: 100%.

Influencing Factors: Good results were achieved through efficient operation and maintenance of facilities.

Strategy Going Forward: Efficient operation and maintenance will continue in 2011.



Percent of scheduled actions (inspections, sampling and reporting) completed quarterly to comply with State Industrial Stormwater General Permit requirements.

2010 Results: 100%.

2010 Target: 100%.

2011 Target: 100%

Influencing Factors: 100% was accomplished in 2010 due to staff prioritizing the workload to complete required actions.

Strategy Going Forward: In 2011, staff will continue to prioritize the workload to complete required actions.

Percent of stormwater monitoring samples not exceeding Permit Effluent Benchmarks or Limits.

2010 Results: 94%.

2010 Target: 100%.

2011 Target: 100%

Influencing Factors: Turbidity in stormwater flow at the south end of the Cedar Hills Regional Landfill is the cause of this measure not achieving 100% compliance.

Strategy Going Forward: The problem will be addressed by increasing the size of one of the stormwater ponds when Area 8 of the landfill is built in approximately 2018.

Percent of completed landfill surface emissions monitoring actions that do not result in an exceedance reportable as a deviation to the Puget Sound Clear Air Agency (PSCAA).

2010 Results: 100%

2010 Target: 100%.

2011 Target: 100%.

Influencing Factors: Good results were achieved through efficient operation of the landfill gas system and maintenance of the landfill cover system.

Strategy Going Forward: Efficient operation and maintenance will continue in 2011.

Technical Notes

For definitions and more detail.

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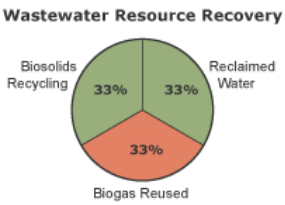
PERFORMANCE MEASURES

WASTEWATER RESOURCE RECOVERY

2010 Rating: ⇔

Wastewater Treatment Division (WTD)



Reclaimed water volumes met

About this performance measure: This measure tracks the amount of wastewater that DNRP's Wastewater Treatment Division converts into resource—reclaimed water.

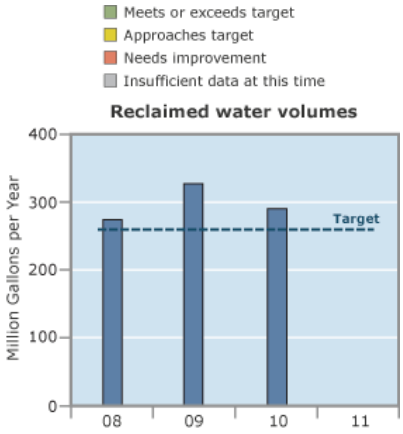
2010 Results: 290.1 Million Gallons (MG)/year

2010 Target: ≥260 MG/yr

2011 Target: ≥260 MG/yr

Influencing factors: Both WTD treatment plants continue to reclaim all water needed for their own operations and any needed by customers. South Plant continued to use reclaimed water for nearly all their compatible internal process needs and irrigation demand. This accounted for about 95% of all reclaimed water used in 2010.

Strategy going forward: WTD's success in converting wastewater into a resource will depend on the cost of providing treatment and conveyance for reclaimed water relative to the cost of using existing sources and/or providing new sources of surface and groundwater. WTD will be developing a regional water supply plan that will address the role of reclaimed water in meeting the region's diverse water supply needs.



Biosolids reuse targets met

About this performance measure: This measure represents WTD's ability to market and recycle biosolids, a nutrient-rich organic material produced by treating wastewater solids.

2010 Results: 100 percent

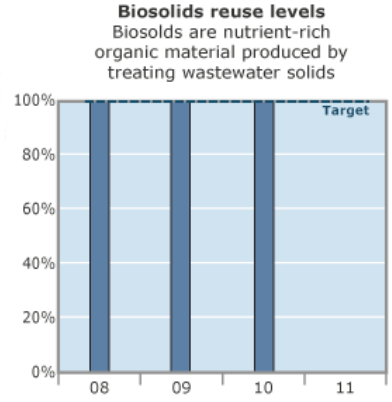
2010 Target: 100 percent

2011 Target: 100 percent

Influencing factors: Two projects at West Point Treatment Plant to improve biosolids quality and reduce digester problems are in the planning stages. These projects will help WTD maintain 100 percent reuse of biosolids. Although 100 percent of available biosolids were reused, the measure requires ongoing attention to ensure this high rate. Having reliable year-round application and storage sites will have the greatest impact on this measure.

Strategy going forward: WTD's strategy for continuing to meet the target of 100 percent biosolids reuse has several components that include:

- Ensuring availability of proven, reliable reuse sites and customers for 150 percent of biosolids production.
- Securing a short-term emergency storage site for occasional winter use.
- Continuing an aggressive industrial pretreatment program to maintain current low metals levels.
- Maintaining an active research and demonstration program that responds to current issues and questions and evaluates potential new uses for biosolids.



Related Information

- WTD facilities equity information
- Water Supply in King County
- WTD Reclaimed Water Program
- Biosolids

Biogas Recovered for Reuse

About this performance measure: This measure represents WTD's ability to convert biogas (carbon dioxide and methane gas), which are natural byproducts of the wastewater treatment process, into heat and energy for use inside the treatment plants through a process known as cogeneration. WTD aims to capture and reuse at least 75% of available biogas for energy and heat production.

2010 Results: 62.6 percent

2010 Target: ≥75 percent

2011 Target: ≥75 percent

Influencing factors: The percentage of biogas being recycled at the two treatment plants has declined over the past five years the West Point cogeneration facilities were taken offline for replacement. The Waste-2-Energy project at West Point will bring new cogeneration facilities online by 2012. These new facilities will allow greater utilization of the available digester gas.

Strategy going forward: The Waste-2-Energy project currently under construction at the West Point Treatment Plant will harness digester gas, a renewable or "green" source of energy, as fuel for cogeneration facilities to provide heat and power at the plant. King County is committed to recovering and reusing the products of the wastewater treatment process at its regional clean-water facilities. The capability to beneficially reuse products increases the efficiency of the wastewater treatment plants, offers environmental sustainability and saves the ratepayers money.

Technical Notes

For definitions and more detail.

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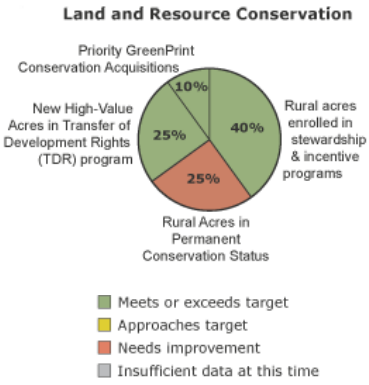
PERFORMANCE MEASURES

LAND AND RESOURCE CONSERVATION

2010 Rating: ⇔

Water and Land Resources Division (WLRD)

Conservation of Natural Lands



About this measure: This measure is composed of two sub-measures to provide a status report on the effectiveness of land acquisition, stewardship and incentive programs administered by the Water and Land Resources Division.

The two sub-measures, their weights, and 2010 results are:

60% New privately-owned rural acres* with stewardship plans or enrolled in incentive programs. This includes properties with farm, forest or rural stewardship plans and properties enrolled in the Public Benefit Rating System or Timber Land, Forest and Agriculturecurrent use taxation programs.

2010 Target: 1000 acres

2010 Results: 654 acres

2011 Target: 500 acres added

40% New public and private rural acres in permanent conservation. This includes all land in public ownership, and privately-owned lands with conservation easements.

2010 Target: 500 acres

2010 Results: 983 acres

2011 Target: 500 acres

*For all of these measures, rural acres refer to all rural and agriculture zoned land, including Vashon Island and excluding the Forest Production District. Stewardship and conservation programs for private land are designed to work in concert, thus a single property may have a combination of current use taxation, farm or forest plan and other conservation actions on the land over many years. For this measure properties are counted only once, in the first year of participation.

Influencing factors: Budget allocations, regulatory and policy changes, economic conditions and opportunity for acquisition all play a role in land conservation and acquisition activities. Implementing policy plans, such as the KC Comprehensive Plan, salmon restoration plans, flood hazard reduction plan, or the climate change adaptation plan, often identify or call for specific land acquisition and protection, outreach, and education toward improving stewardship and changing environmental behavior.

Strategy going forward: Continue to encourage stewardship and conservation on privately-owned lands through effective program delivery and strategic use of funds to acquire high priority lands that will protect environmental quality for future generations.

Related Information

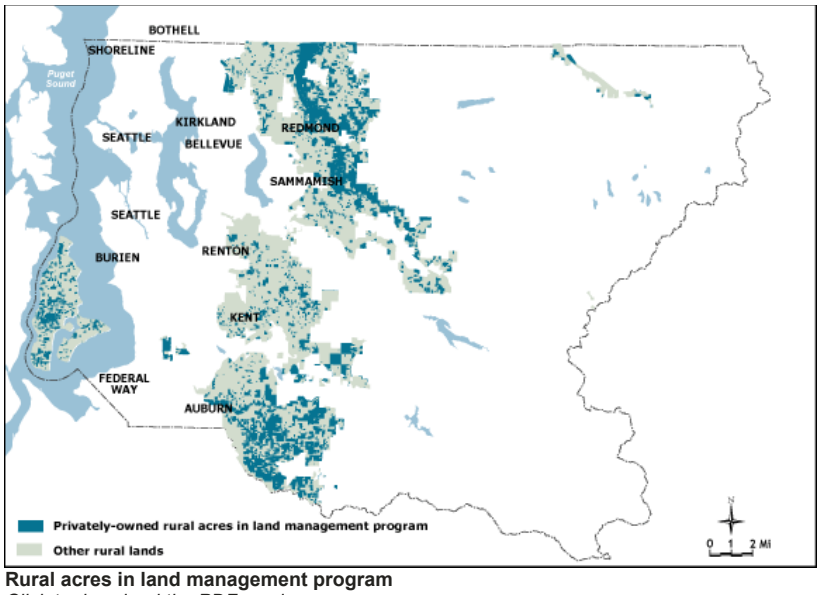
Natural Resource Lands

Greenprint

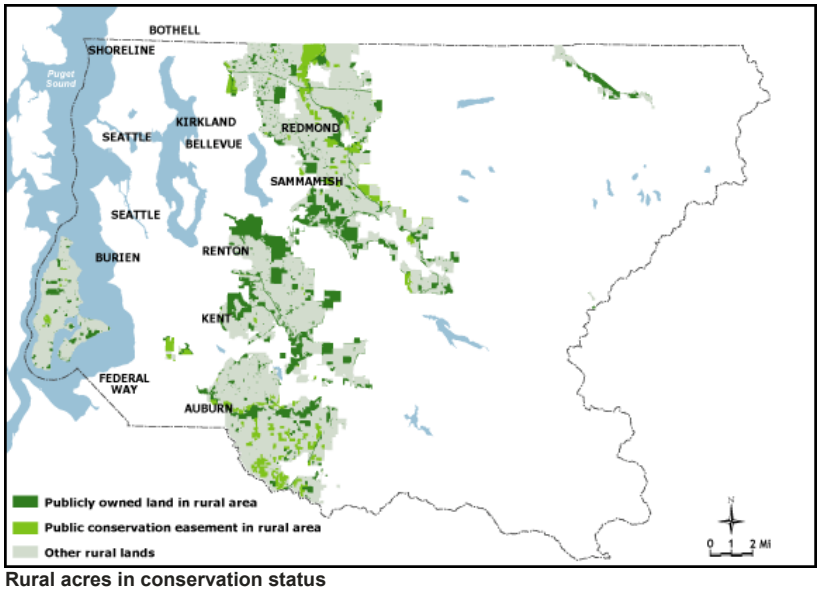
Transfer of Development Rights

Agriculture and Forestry

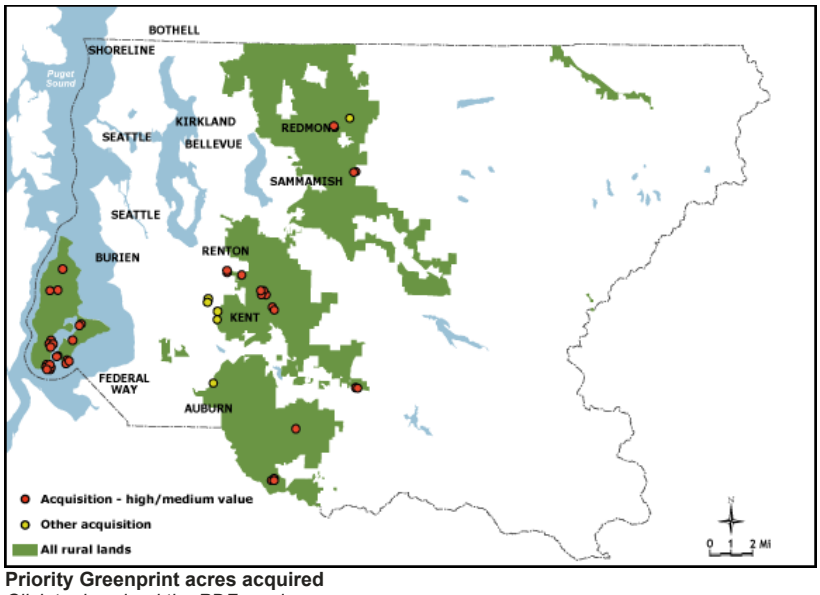
Water and Land Resources Division



Rural acres in land management program
Click to download the PDF version.



Rural acres in conservation status
Click to download the PDF version.



Priority Greenprint acres acquired
Click to download the PDF version.

Technical Notes

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PERFORMANCE MEASURES

SOLID/HAZARDOUS WASTE MANAGEMENT

2010 Rating: ⇔

Solid Waste Division (SWD)

Percent of single-family curbside solid waste stream that is recycled.

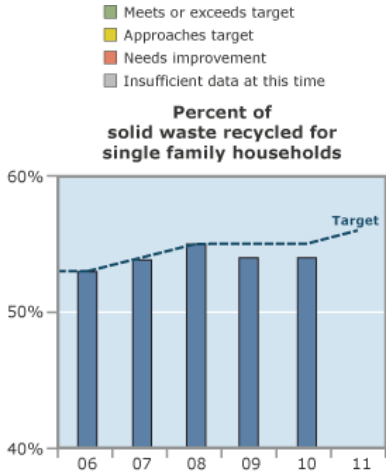
2010 Results: 54%.

2010 Target: 55%.

2011 Target: 55%.

Influencing Factors: : As of December 2010, 97% of single-family garbage customers had food waste collection services available. In addition, in 2010, the Division's "Recycle More. It's Easy to Do." campaign included print, broadcast, and online ads resulting in over 127,000 media impressions; media events, including the "Lighten Your Load Media Challenge" and the "Pumpkin Smash" with Q13 TV; and retail partnerships with Round Table Pizza that promoted food and food-soiled paper recycling and with Bartell Drugs that provided discounts for compostable bags and countertop food waste containers.

The campaign also conducted outreach and education to residents of seven cities with recycling rates under 35%, including the cities of Snoqualmie, Kent, SeaTac, Renton, Tukwila, Kenmore and Federal Way. Outreach and education activities included providing recycling information at community events, such as the SeaTac International Festival; writing articles for community newspapers; and taking advantage of other unique educational opportunities, such as featuring the "Recycling Royalty" educational characters on Kent TV.

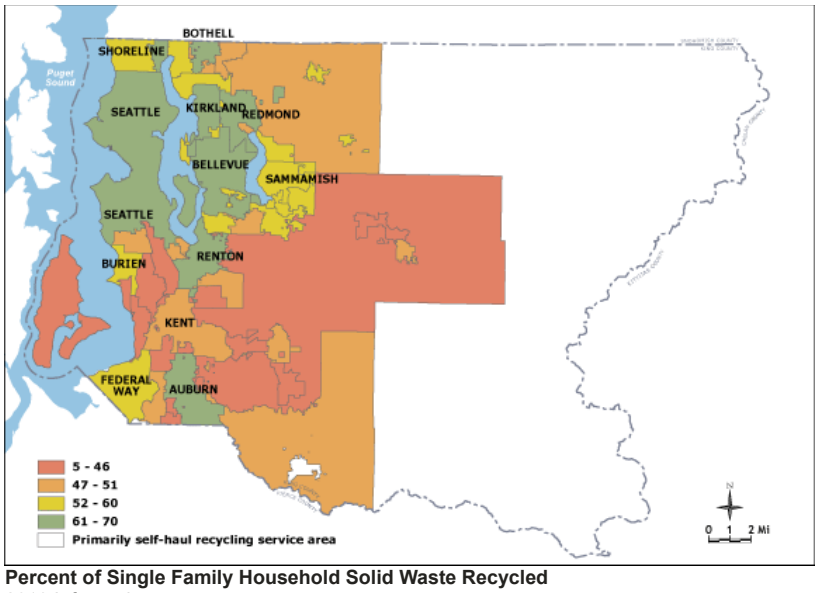


Strategy Going Forward: These and other efforts will continue in 2011. In addition, the "Recycle More. It's Easy to Do." campaign will have a new focus on conducting recycling education and outreach to the county's Spanish-speaking community. The reasoning for this is that Hispanic residents represent 15.2 percent of the total population and are the fastest growing segment of the population of any race in King County. Other than English, Spanish is the most frequently spoken language in the county.

Technical Notes: The data are countywide except for: a) the cities of Seattle and Milton, which are not in the King County solid waste system; and b) Snoqualmie Pass and the Skykomish area, which have limited collection services.

Related Information

- Wastemobile and Take-it-Back network stores equity information
- What do I do With...?
- Solid Waste Recycling
- Garage & Yard Sales
- Household Online Materials Exchange
- Industrial Materials Exchange
- Solid Waste Business Services
- Hazardous Waste Disposal



Percent of Single Family Household Solid Waste Recycled
2010 Information
Click to download the PDF version.

Pounds of solid waste disposed per single-family household per week.

2010 Results: 26 pounds per week.

2010 Target: 25 pounds per week.

2011 Target: 25 pounds per week.

Influencing Factors: As of December 2010, 97% of single-family garbage customers had food waste collection services available. In addition, in 2010, the Division's "Recycle More. It's Easy to Do." campaign included print, broadcast, and online ads resulting in over 127,000 media impressions; media events, including the "Lighten Your Load Media Challenge" and the "Pumpkin Smash" with Q13 TV; and retail partnerships with Round Table Pizza that promoted food and food-soiled paper recycling and with Bartell Drugs that provided discounts for compostable bags and countertop food waste containers.

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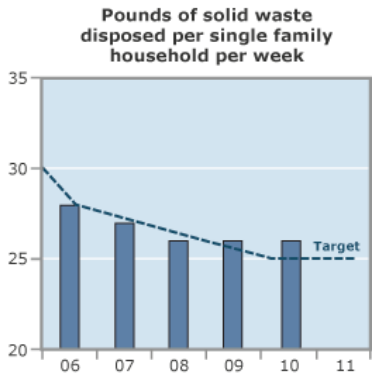

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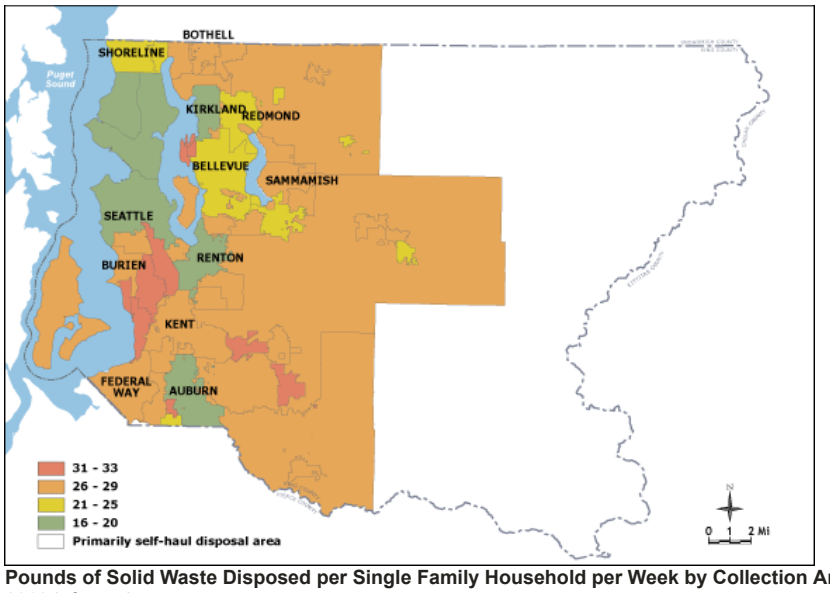


Pounds of Solid Waste Disposed per Single Family Household per Week by Collection Area
2010 Information
Click to download the PDF version.

Pounds of solid waste disposed per employee per week countywide

2009 Results: 21.7 pounds per week

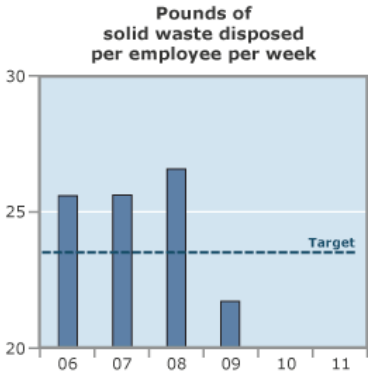
2009 Target: 23.5 pounds per week

2010 Results: 19.9 pounds per week

2010 Target: 23.5 pounds per week

2011 Target: 23.5 pounds per week

Influencing Factors: In 2010, garbage disposal per employee was 18% lower than the county's target of 23.5 pounds per employee per week. The steep decline in disposal per employee reflects the impact of the recession and slow recovery on garbage generation and disposal. Since most of the businesses in the county are located in cities, the Solid Waste Division (SWD) provides support to cities in the form of Waste Reduction and Recycling (WRR) grants to improve city recycling programs. SWD also hosts a web site that provides information on workplace recycling, business waste prevention activities, and property managers recycling.



Strategy Going Forward: The strategy for 2012 is for SWD to continue to work with cities to increase recycling services for businesses and institutions. These efforts will include continuing to provide WRR grants to cities and continuing the Green Schools Program to help schools recycle more.

Technical Notes: The county's service area for this measure is all of King County except for the cities of Seattle and Milton (and including the entire city Bothell). Also, employees included in this measure are those considered "covered employees." Covered employment refers to positions covered by the Washington Unemployment Insurance Act. The Act exempts the self-employed, proprietors and corporate officers, military personnel and railroad workers, therefore those categories are not included in the dataset. Covered employment accounts for approximately 85-to 90% of all employment.

Residents' recycling and disposal behavior via EBI

About this measure: The King County Environmental Behavior Index (EBI) tracks and reports on the adoption of selected environmental behaviors of King County residents. In 2004 and again in 2006, 1000 randomly selected respondents in King County participated in a telephone survey and reported on their household's behaviors related to:

- Yard Care

- Recycling And Disposal
- Environmentally Friendly Purchasing

Understanding residents' awareness and behavior guides a more cost-effective targeting of outreach efforts and helps evaluate whether the efforts to improve these behaviors are making a difference.

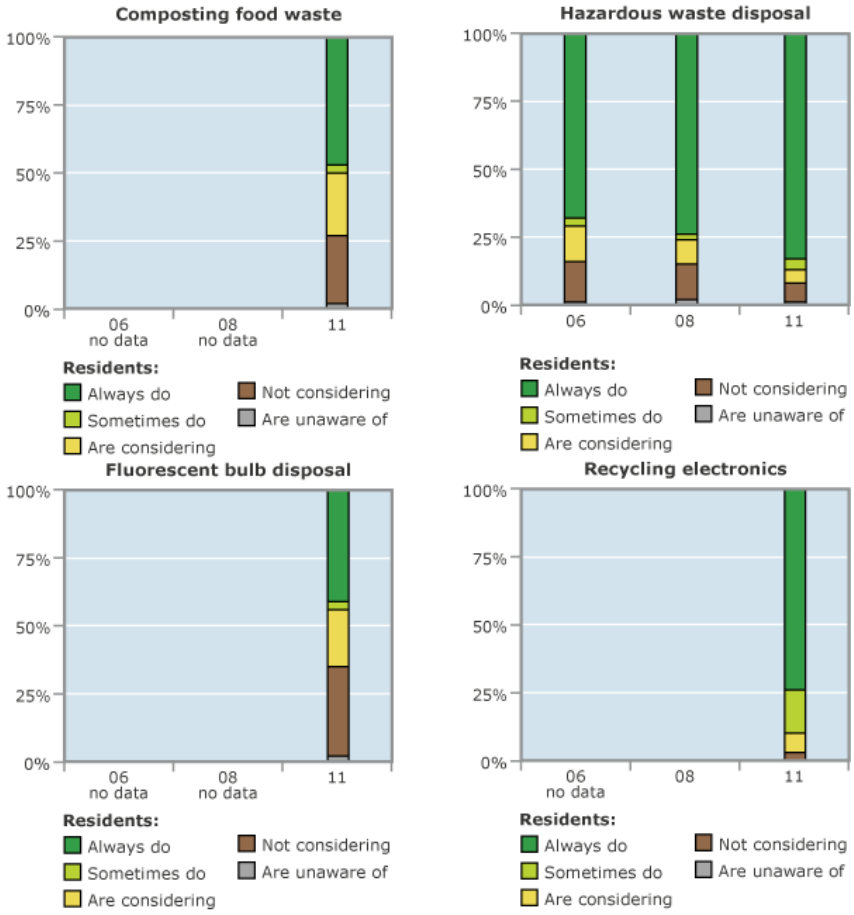
The 2006 Environmental Behavior Index was conducted in spring of 2006. The findings about yard care and purchasing behavior can be found under the performance measure on solid and hazardous waste management, which is **here**.

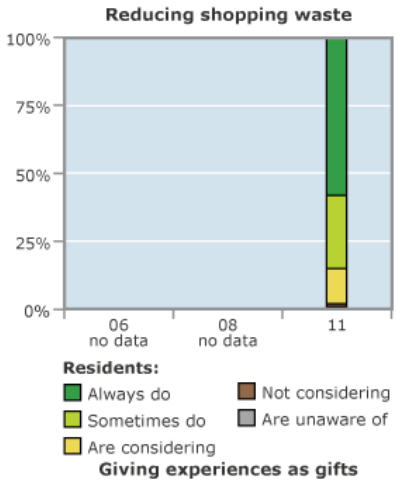
Below are details on findings for residential recycling and disposal behaviors.

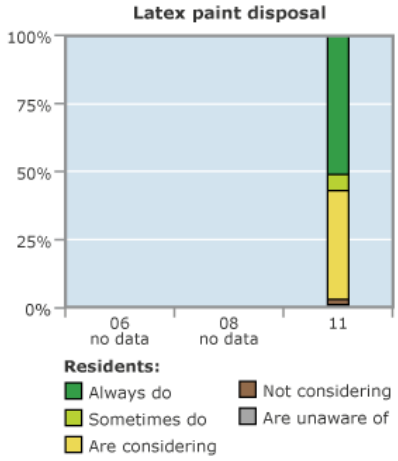
2006 results: The 2006 survey of residents' recycling and disposal behaviors indicates that use of recycle containers at home is high and improving, as is proper disposal of paints, kitchen grease and prescription drugs. Proper disposal of compact fluorescent light and tubes is low and is slightly declining.

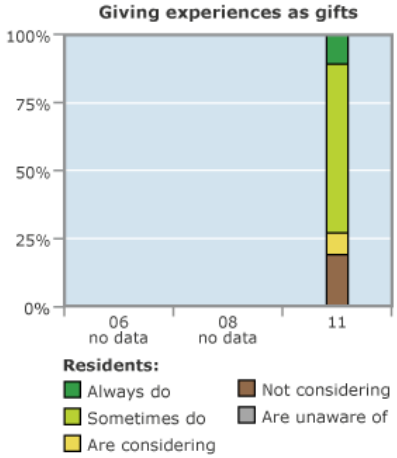
Influencing factors: In 2006, the Seattle City Council passed an ordinance making it illegal and punishable by fine to put selected recyclables in the garbage. There was significant media coverage of this new legislation, which likely influenced both awareness and behavior of residents throughout King County.

Strategy going forward: SWD will continue to work with cities to allow food waste recycling with yard debris. The SWD is partnering on a recycling education campaign, "Recycle More, Its Easy to Do" and is making further improvements to its Web site about general and food waste recycling.









Seattle - King County Local Hazardous Waste Program

About this measure: This measure is a composite index of actions aimed at reducing exposure to hazardous materials. Below are descriptions of 5 key 2009 program areas of the Local Hazardous Waste Management Program and a rating of the degree that targets for these actions were met.

Waste pharmaceuticals project

Completed the largest unused medicine collection pilot project in the United States, and initiative to enact a product stewardship law for the safe and secure take-back of unused pharmaceuticals.

2006 results: 7 sites

2007 results: 25 sites

2008 target: 37 sites

2009 results: Completed two-year pilot project in October 2008. Group Health Cooperative and Bartell Drugs continue to collect waste medicines at 37 sites across the state. Other sites at police and sheriff offices have been set up to address controlled substances. Since the project began, more than 27,000 pounds of unused medicines have been collected for safe and secure destruction. Washington legislature did not pass proposed product stewardship bill in 2009 or 2010 sessions.

Influencing factors: The pilot project demonstrated the feasibility of collecting used medicines safely and securely at pharmacies. Logistics surrounding controlled substances continue to present major challenges.

Strategy going forward: Pilot project successfully tested the pharmacy take-back model. Group Health and Bartell Drugs continue to offer service in the interim, as are a growing number of law enforcement sites to address controlled substances. Our focus is now on passing legislation that would require drug manufacturers to take over the long-term collection of unused medicines via a product stewardship system.

Nail salon English-as-a-second language business project

The purpose of this project is to work with nail salon workers for whom English is a second language to reduce exposure to

hazardous chemicals.

2009 results: Developed "healthy nail salon" guidelines in collaboration with the Environmental Coalition of South Seattle, Community Coalition for Environmental Justice, U.S. EPA and other partners. Tram Duong, ECOSS partner, has provided more than 200 technical assistance visits to salons in King County. In addition we have worked with beauty schools, nail supply distributors and Washington Department of Licensing to increase awareness of safe chemical handling in salons.

Influencing factors: Many connections have been made with the nail salon industry and with Vietnamese-American community to build trust, research concerns, and develop safer alternative products and practices. Working with local NGO partners helps reach an audience skeptical of working directly with government.

Strategy going forward: Continue outreach to salons where Vietnamese-Americans are owners or predominant workers. Increase level of contacts and reach within this community. Explore EnviroStars certification criteria to promote best management practices.

Healthy schools project

The focus of this project is to reduce or eliminate exposures to key hazardous chemicals in all King County schools.

2009 results: 69 school inspections were completed, looking for mercury, lead glazes and high risk chemicals. Elemental mercury continued to be found in schools, and was removed. Explosive old chemicals such as crystallized ethyl ether were also uncovered and safely removed. Washington state included our chemical restrictions in its revised K-12 Health and Safety Guide.

Influencing factors: We had hoped that we could rely on past inspections done through the Rehab the Lab project to assure that schools were, for example, mercury-free, but have found instead that pockets of old products continue to turn up. In addition to science lab supplies, our focus is turning to art supplies, where lead ceramic glazes, hexane-acetone glues and other high hazards are common.

Strategy going forward: Keep working with individual schools, school districts and the state Office of the Superintendent of Public Instruction. Continue to refine high risk chemicals ratings and lists that can be disseminated by the state to influence all schools across Washington.

Low-income governmental housing

The aim of this project is to reduce exposures to key hazardous chemicals found in public housing within King County.

2009 results: This project fell short of target. Developed signed agreements with two out of three public housing authorities to eliminate and properly dispose of all mercury-containing thermostats as well as implement some pesticide-reduction strategies. Provided Integrated Pest Management training and consultations.

Influencing factors: Local housing authorities are stretched thin, yet are interested in working with us on a variety of hazardous chemical reduction strategies, both in their facilities and landscapes and in getting useful information directly to their residents.

Strategy going forward: Continue work with housing authorities, looking for avenues where our services best match their needs. In addition to mercury-reduction through fluorescent lamp recycling and thermostat change-outs, we will focus on integrated pest management techniques to explore ways to reduce pesticide use.

Flood hazard zones

This project aims to prevent the release of hazardous chemicals in the event of major river flooding in King County.

2009 results: Provided significant outreach to both businesses and residents potentially affected by the diminished capacity of the Howard Hanson Dam in the lower Green River Valley. Developed best management practice guidelines for storage and use of hazardous materials in flood zones from federal and other sources.

Influencing factors: Each flood zone valley within King County has a different mix of issues, from predominantly agricultural in the Snoqualmie to commercial and industrial developments in the Green. No one size fits all in terms of best management practices or outreach mechanisms. Our emphasis is 2009 has been in the Green, while continuing to provide core assistance in the Snoqualmie.

Strategy going forward: We will continue to explore the best approaches to hazardous material storage concerns in areas subject to major river flooding and to work with those agencies, local governments and businesses who know flood-related issues the best.

Technical Notes

For definitions and more detail.

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PERFORMANCE MEASURES

RESIDENTS STEWARDSHIP

2010 Rating:

About this measure: The King County Environmental Behavior Index (EBI) tracks and reports on the degree selected environmental behaviors are practiced by King County residents. In 2005, 2006, and 2008, approximately 1000 randomly selected residents in King County participated in a telephone survey and reported on their household's behaviors related to:

- Yard Care
- Recycling And Disposal
- Water Quality
- Climate

Understanding residents' behavior guides a more cost-effective targeting of outreach efforts and helps evaluate whether the efforts to improve these behaviors are making a difference.

The 2008 Environmental Behavior Index was conducted in spring of 2008. The findings about recycling and disposal information can be found under the performance measure on **solid and hazardous waste management**.

Below are details on the findings for the yard care and purchasing areas.

Residents' Purchasing Recycling And Disposal

2008 results: This year's survey indicates that choosing less-toxic cleaning products and less-toxic paints and giving experiences instead of physical gifts have all improved in recent years.

2008 target: Improving trends in purchasing practices

2009 target: Improving trends in purchasing practices

Influencing factors: Many factors affect the purchasing decisions. Cost, product convenience, and availability are all influential. Public awareness about the impacts of these decisions on the health and environment also plays an important role.

Strategy going forward: King County is advancing efforts to improve purchasing practices in several coordinated ways. The Solid Waste Division is emphasizing public education through the Eco-consumer program and is sponsoring Eco-Deals — a partnership with makers of green products to use coupons and discounts to promote green products.

The King County is also involved nationally, regionally, and locally with product stewardship efforts that require manufacturers to establish product collection programs. The "Take it Back Network" is expanding locations and opportunities to recycle fluorescent bulbs, electronics and other products.

Residents' Yard Care Practices

2008 results: This year's survey of King County residents confirms that yard care behaviors indicates significantly improving practices regarding:

- composting
- controlling invasive plants, and
- reducing lawn size.

The yard care practices that are steady or only slightly improving include:

- lawn watering

Related Information

Rural Stewardship

Forestry Stewardship

Farm Stewardship

- adding native vegetation, and
- proper treatment of treatment of trees and shrubs for insects/diseases.

2008 target: Improving trends in residents' yard care practices

2009 target: Improving trends in residents' yard care practices

Influencing factors: Recycling yard waste and changes in pesticide use are fairly easy behaviors to change and improve—and there are many voices, messages and incentives to encouraging such change. Reducing lawns, using the right fertilizer, using compost and restoration with native plants, all involve more complex and costly changes and have fewer supporting messages or region wide programs explaining how to do it.

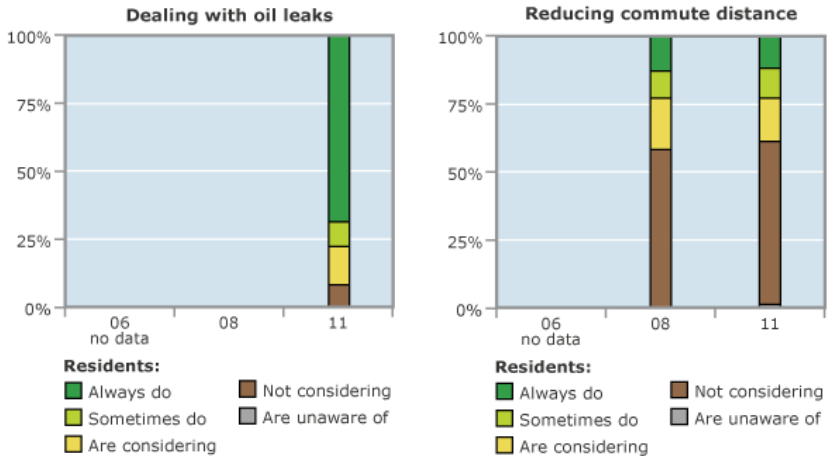
Strategy going forward: Water and Land Resources Division (WLRD) will continue to partner with local cities—reaching 13 neighborhoods in 2009 —using Natural Yard Care classes to help folks transition into smaller lawns, use of native plants and pervious pavements and proper fertilizing and composting. Other counties (Pierce and Snohomish) are beginning to replicate our program.

The new online, "Northwest Native Plant Landscaping Guide" is being promoted in conjunction with the trainings to provide technical assistance to residents.

A Natural Yard Care Web site created by our Online Solutions group in 2008, should be up and running by 2009. The King County TV Yard Talk show will continue to feature information on these topics. Also in 2009, more relevant information about stormwater and best management practices (car washing, pet waste, infiltration and yard care) will be offered through the Natural Yard Care classes, Yard Talk, and via an upcoming series of broadcast ads to be aired in Sept/Oct 2009 on cable networks.

Technical Notes:
Pdf of 2008 environmental Behavior Survey Report

Environmental Behavior Survey Findings



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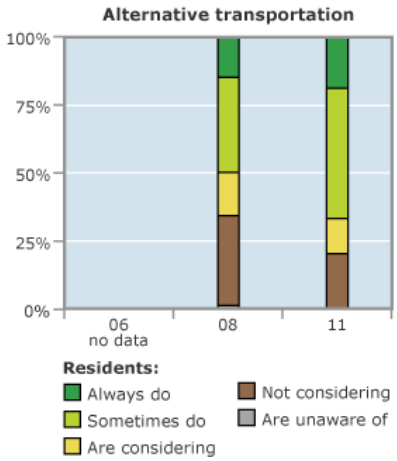
Alternative transportation
100%
75%
50%
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0%
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no data
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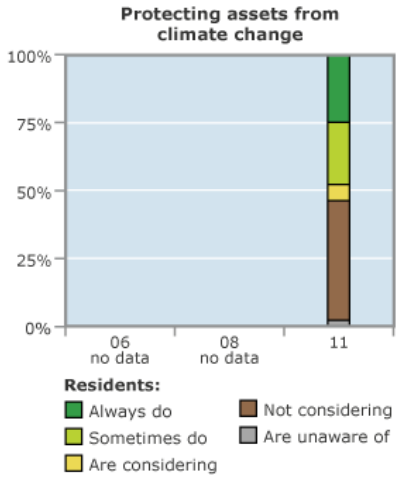
11
Residents:
Always do
Sometimes do
Are considering
Not considering
Are unaware of


Protecting assets from climate change
100%
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50%
25%
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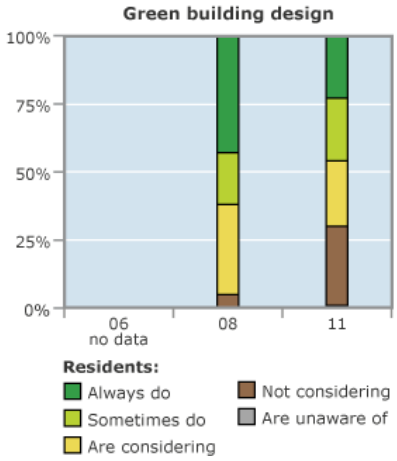
Residents:
Always do
Sometimes do
Are considering
Not considering
Are unaware of


Green building design
100%
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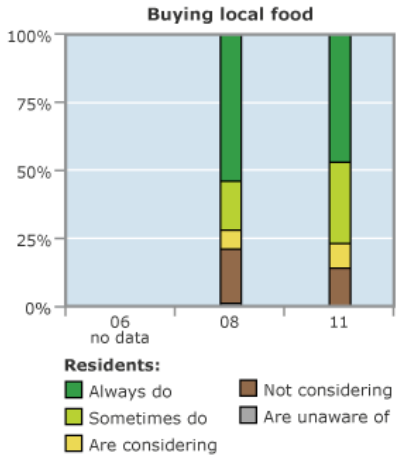
Residents:
Always do
Sometimes do
Are considering
Not considering
Are unaware of


Buying local food
100%
75%
50%
25%
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06
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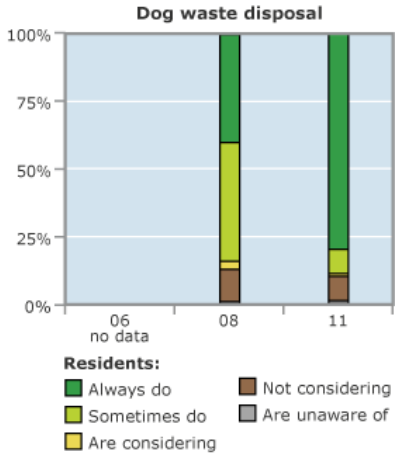
Residents:
Always do
Sometimes do
Are considering
Not considering
Are unaware of


Dog waste disposal
100%
75%
50%
25%
0%
06
no data
08
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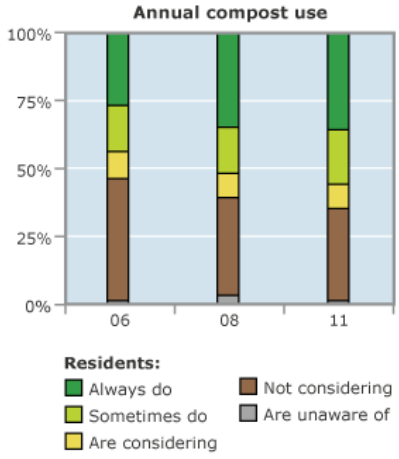
Residents:
Always do
Sometimes do
Are considering
Not considering
Are unaware of


Annual compost use
100%
75%
50%
25%
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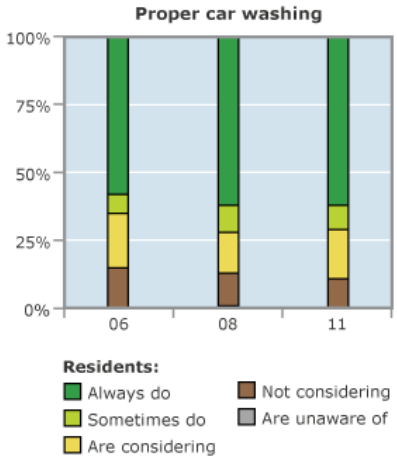
Residents:
Always do
Sometimes do
Are considering
Not considering
Are unaware of


Proper car washing
100%
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50%
25%
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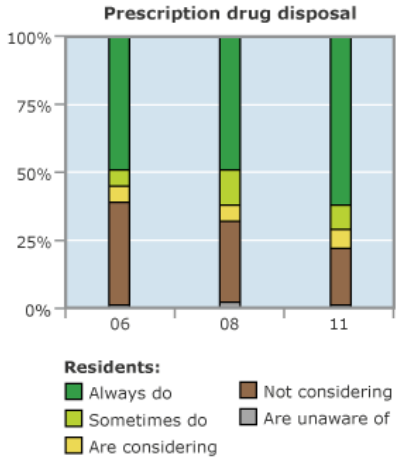
Residents:
Always do
Sometimes do
Are considering
Not considering
Are unaware of


Prescription drug disposal
100%
75%
50%
25%
0%
06
08
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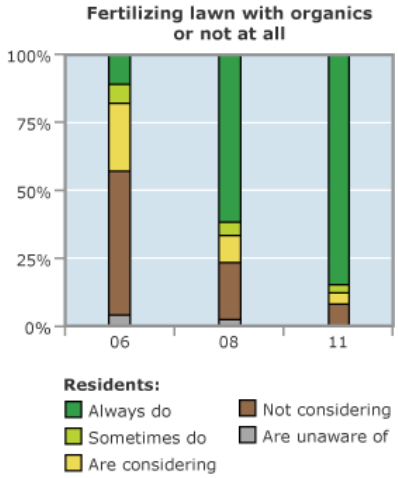
Residents:
Always do
Sometimes do
Are considering
Not considering
Are unaware of


Fertilizing lawn with organics or not at all
100%
75%
50%
25%
0%
06
08
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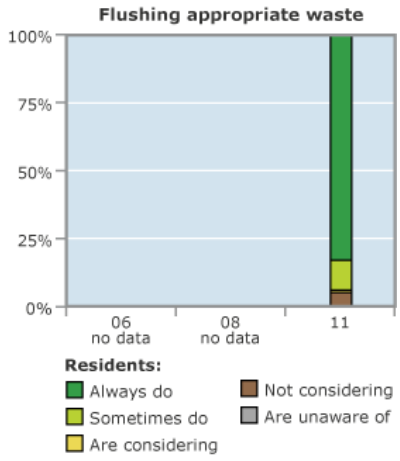
Residents:
Always do
Sometimes do
Are considering
Not considering
Are unaware of


Flushing appropriate waste
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no data
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no data
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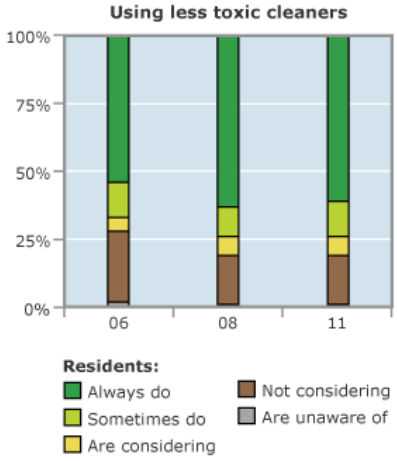
Residents:
Always do
Sometimes do
Are considering
Not considering
Are unaware of


Using less toxic cleaners
100%
75%
50%
25%
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06
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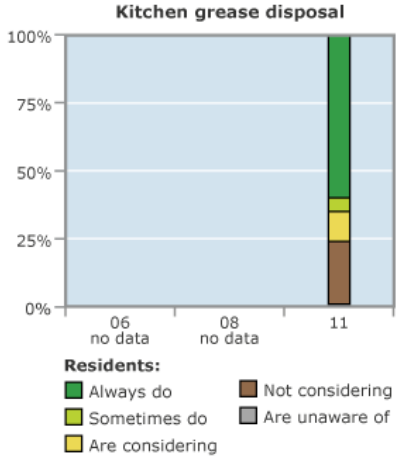
Residents:
Always do
Sometimes do
Are considering
Not considering
Are unaware of


Kitchen grease disposal
100%
75%
50%
25%
0%
06
no data
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no data
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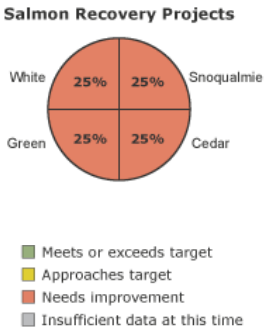
Residents:
Always do
Sometimes do
Are considering
Not considering
Are unaware of

PERFORMANCE MEASURES

CHINOOK SALMON RECOVERY PROJECTS

2010 Rating: ↓



About this measure: In 1999 Chinook salmon were listed as threatened under the Endangered Species Act (ESA). In 2005, the Puget Sound Region, including King County and all its partners, completed a comprehensive science-based Salmon Recovery Plan. The Plan outlines the necessary actions to achieve the delisting of Chinook salmon and benefit other salmonids including coho, and (the now ESA-listed) steelhead.

This KingStat measure reflects King County's completion of Salmon Recovery Plan capital restoration projects and land acquisitions in unincorporated King County. An initial and ambitious list of 136 projects, across three watersheds (Snoqualmie, Cedar, and Green), was identified in the unincorporated portions of King County. The Recovery Plan suggest that King County should implement these projects in a ten-year period 2006-2015. This timing would require King County on average to complete 13.6 projects per year. However, progress hinges on funding commitments from federal, state and local sources. Since the initial list was identified, adaptive management has led to the addition of new projects including actions in a fourth watershed (White River) and the removal of some actions. This measure reports King County's completion of priority salmon recovery projects compatible with the Recovery Plan goals and compares that progress to the ambitious plan goal of 13.6 projects each year.

2010 Results:

3 projects were completed in 2010

- Fenster-Pautzke Setback and Floodplain Reconnection (WRIA 9)
- Piner Point Bulkhead Removal (WRIA 9)
- Lower Boise Creek Restoration (WRIA 10)

Preliminary construction for **58 projects are actively underway across four watersheds**

Cumulative number of projects completed in 2006 - 2010: 23

Cumulative number of projects actively underway and/or completed: 81

2010 Target: 13.6 projects per year would keep pace with original with the Chinook Salmon Recovery 10-year Plan.

2010 Results: Operationally, 3 projects were scheduled for completion in 2010.

2011 Target: 13.6 projects should be completed in order to keep pace with the Chinook Salmon Recovery 10-year Plan.

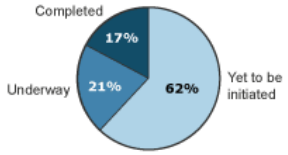
Completing 82 total projects by year end 2011 would keep pace toward accomplishing the 10-year goal by 2015. To date, 81 projects total have been completed or are currently in some phase of implementation.

Influencing Factors: King County's ability to meet our target is primarily hampered by a lack of dedicated funding for salmon recovery capital actions. The majority of dollars to support our success to date come from external grant sources. As of 2010, 10 projects have been dropped from that list due to results of feasibility studies and 9 have projects have been added.

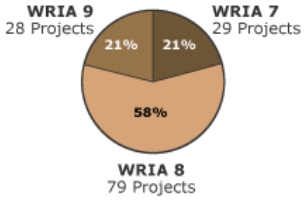
Strategies Going Forward: King County continues to work strategically to prioritize and sequence its efforts to ensure most important projects are implemented first. The county is actively pursuing acquisitions and capital design and construction projects across all watersheds. We work closely with our regional partners to identify leveraging opportunities and other partnerships to facilitate the implementation of on-the-ground work. We will continue to pursue a more stable funding mechanism for salmon recovery and watershed protection efforts.

Related Information
Rural Stewardship
Forestry Stewardship
Farm Stewardship

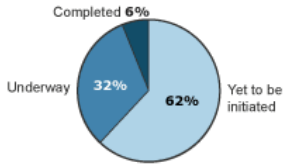
Total Number of Projects Proposed in WRIA 7



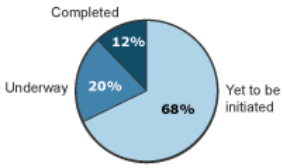
Total Number of Projects Proposed in King County Salmon Recovery Plan by Watershed



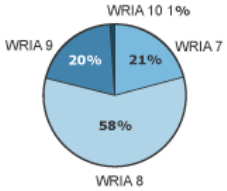
Total Number of Projects Proposed in WRIA 8



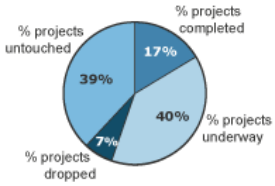
Total Number of Projects Proposed in WRIA 9



King County's 10-Year Chinook Salmon Recovery Plan Project Distribution by Watershed



Chinook Salmon Recovery 10-Year Plan Status



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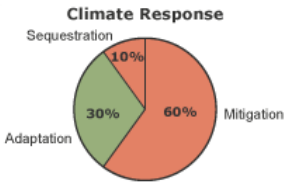
PERFORMANCE MEASURES

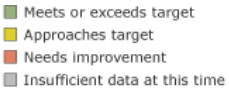
CLIMATE PROTECTION

2010 Rating: ⇔

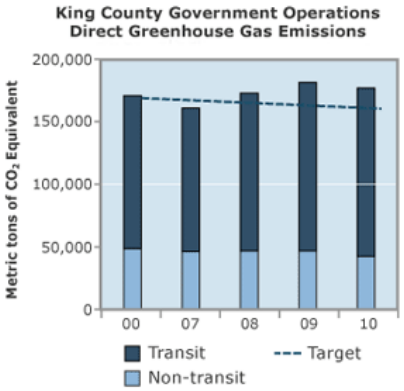
About this measure: This performance measure addresses the degree that King County achieves its climate response objectives for government operations related to:

- Mitigating (reducing) operational greenhouse gas (GHG) emissions and sequestering carbon
- Climate change impacts preparedness (adaptation).





King County Government operations creates roughly 420,000 metric tons of carbon dioxide equivalents (MTCO2e) annually, or about 2% of the King County region's emissions. These operational emissions are equal to the annual emissions of about 105,000 U.S. vehicles. Production of greenhouse gases (primarily methane) from landfills and wastewater treatment are the dominant source of government emissions, with transportation, especially from transit busses, a close second. Electricity usage for operations is the third most important source of emissions, accounting for about 15% of the total.



Performance Targets: King County's climate response targets are articulated in the 2008 King County Comprehensive Plan and the 2007 Climate Plan. Primary goals related to government operational GHG emissions are to:

- Reduce all King County government GHG emissions to 6% below 2000 levels by 2010

In addition to these emissions mitigation targets, the Comprehensive Plan articulates ways that King County should be a leader in promoting carbon sequestration as well as in climate change impacts preparedness.

Status: As a member in the Chicago Climate Exchange, King County has legal and fiscal commitments to reduce its direct greenhouse gas emissions from gasoline, diesel, heating oil, natural gas, jet fuel and steam usage. Countywide performance is reported below:

For an analysis of the region's performance status to reach the overall community reduction goal of 80% below 2007 levels by 2050, see the Atmosphere Indicator (provide link).

King County government also continues to work to prepare for the impacts of climate change. Examples of 2009 efforts included:

- Reducing current and projected flood risk by repairing levees and revetments, acquiring at-risk floodplain properties and improving flood warning and prediction capacity.
- Planning for the impacts that projected sea level rise would have on county infrastructure.
- Beginning a new effort to plan for projected climate change impacts on public health.

Influencing Factors: The key factors that influence King County's ability to meeting government operational greenhouse gas emissions reductions and climate preparedness goals include:

- cost and adoption rate of energy efficiency and renewable energy projects
- leadership and operational level commitments to emissions reduction
- policy development, accounting advancements, and staff training

Related Information

Global Warming Action Plan

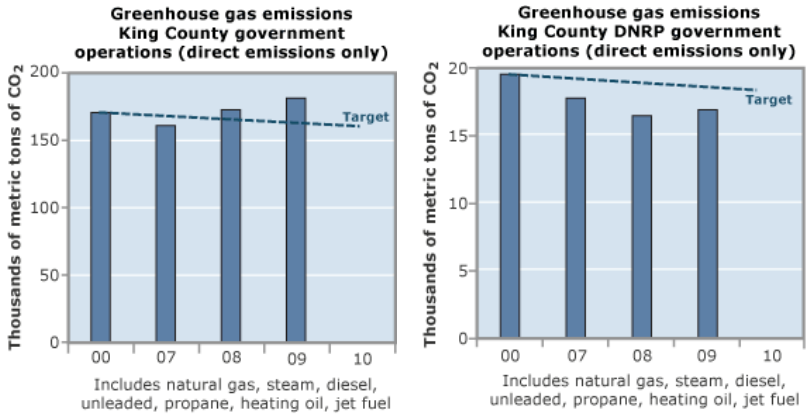
King County Climate Change site

2005 King County Climate Change Conference results

- science to inform and optimize carbon sequestration and adaptation strategies
- technologies to measure and improve actions that prepare King County lands for unavoidable impacts of climate variability

Existing response: The 2009 King County Climate Report, transmitted by King County Executive Dow Constantine on February 1, 2010, documents actions during the last year that implement the 2007 King County Climate Plan. It also gives an overview of anticipated activities for 2010. The report outlines progress and plans in four key areas: leadership, mitigation of greenhouse gas emissions, adaptation to prepare for the impacts of climate change and assessment. A few of the many accomplishments in 2009, and plans for 2010, are highlighted on the King County Climate Change website.

2009 King County Climate Report



Technical Notes

For definitions and more detail.

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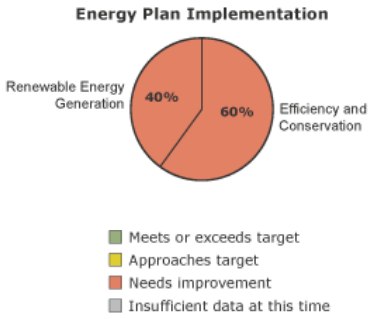
PERFORMANCE MEASURES

ENERGY PLAN

2010 Rating:

Energy Plan Implementation



Progress toward Implementation of King County Energy Plan

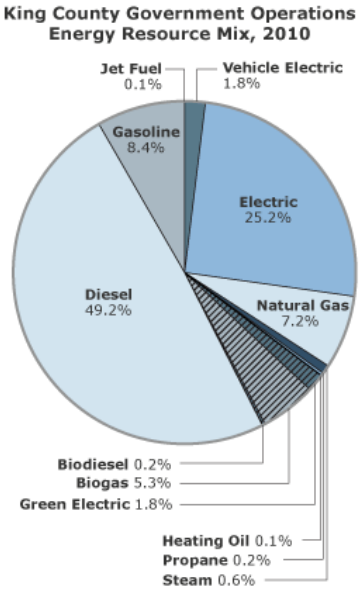
About this performance measure: King County Executive Ron Sims issued an Executive Order in 2006 establishing renewable energy use goals for King County government operations and directed the development of a plan to meet these goals.

The renewable energy order requires that, compared to 2007 baseline levels:

- 50% of King County's facility and operations energy come from renewable sources by 2012 (except for the Metro Bus Fleet)
- 35% of energy for Metro buses come from efficiencies and renewables by 2015
- 50% of energy for Metro buses come from efficiencies and renewables by 2020

King County has mapped a comprehensive strategy for achieving the Executive Order goals through its Energy Plan, major elements of which include:

- Staffing an Energy Task Force representing all major energy-using departments and divisions in the county to implement the Plan.
- Broad adoption of utility accounting software to benchmark facilities and track progress towards energy goals; reporting results to Executive
- Energy policy definition and implementation to improve energy efficiency, conserve energy aggressively, and expand use of renewable energy sources as described in the sections below.



Related Information

- Global Warming Action Plan
- King County Climate Change site
- 2005 King County Climate Change Conference results

Renewable Energy And Energy Capture

Supply 50% of King County's non-transit (Metro Transit Bus) energy from renewable sources by 2012, and 35% of King County's transit energy from efficiencies and renewables by 2015. Maximize the conversion of waste-to-energy at county facilities.

About this performance measure: In Executive Order PUT 7-6 directed the county to ultimately supply half (50 percent) of its energy requirements from renewable sources. All the county divisions except DOT/Transit are required to meet this goal by 2012, while Transit is allowed 8 years more (until 2020) to reach the same goal, with option to meet this requirement by equivalently reducing supply requirements through efficiency increases in their operations. The county does not specify preferred sources for these renewable energy supplies.

At the same time, King County provides disposal services for many residents' waste products, both solid and liquid. Processing these waste streams uses significant energy, but can also extract energy from some of them if properly designed. Currently, the county produces 317,350 million British Thermal Units (MMBtu) per year of renewable energy from its own waste-to-energy operations. This represents almost 60% of renewable energy sources currently in use in the county. While setting very high goals for the portion of energy supply that comes from renewables, the county has expectations that it will be able to meet much or all of its renewables commitments using county-controlled renewable resources.

2007 Results:

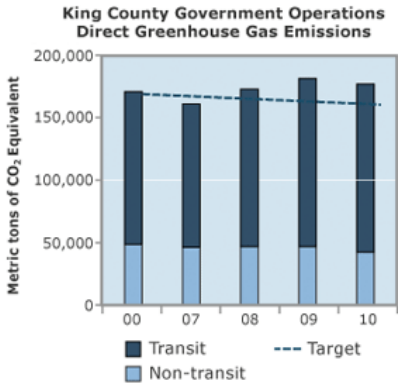
- 15% Renewable energy supply to county operations (11% in Transit, 19% in all other operations)
- Substantial existing county renewable resources used -- Large biodiesel purchases (228,399 MMBtu) may not be sustainable in future because of costs
- Selection of best development alternatives for large waste-to-energy projects in Solid Waste and Wastewater

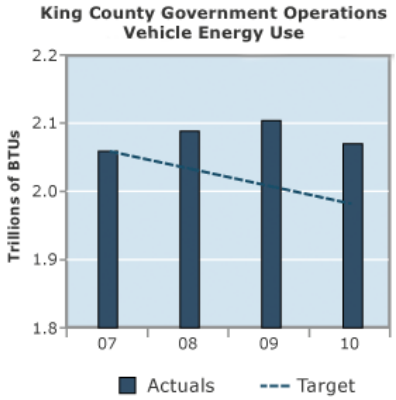
2008 Targets: Increased renewable energy supply to county operations (nominally to 14% in Transit, 25% in all other operations)

2009 Targets: Further increases in renewable energy supply (nominally to 17% in Transit, 31% in all other operations) Solid Waste division landfill gas project expected to come on line selling "renewable" gas

Influencing factors: A primary factor in achieving renewable target is the speed and degree that county renewable resources are developed (from Wastewater and Solid Waste divisions). Another factor is the future price of renewable energy technologies and developments and the price of "Renewable Energy Certificates," (RECs) on local energy markets.

Strategy going forward: With the development of a large landfill gas scrubbing operation at Cedar Hills landfill in 2009, the amount of "renewable" energy resource the county controls and can claim as available to meet its goals (either as greenhouse gas credits or some form of renewable energy certificate) should dramatically expand while the gas (which is typically classed as a "renewable resource") is extracted from the landfill. While challenged to meet its renewable energy goals in the short term (next 2-3 years), the county should have enough renewable energy from the landfill to exceed its goals set in the Executive Order for approximately 20 years after 2010. This assumes the Solid Waste division is able and willing to certify and share its Cedar Hills landfill gas greenhouse gas reduction credits or equivalent RECs with the entire county to meet the county's renewable energy goals. If this is not allowed or impractical meeting the renewables goals may be quite expensive. What the long term strategy for renewables may be beyond the 20 year life of the landfill is unclear at this time.





Energy Efficiency And Conservation

(E_2) Achieve a 10 percent normalized net reduction in County energy use by 2012.

About this performance measure: Efficiency and other types of energy savings strategies are widely recognized to be the appropriate first line of attack to reduce the impacts (cost and environmental) of energy uses, because saving energy is usually cheaper than supplying energy. The Energy Plan sets an easily measurable and attainable performance goal to reduce energy use 10 percent in county departments over the next 5 years against 2007 levels. The interim targets presented below assume constant progress to the 5-year goal; however, energy savings acquisitions are typically less regular, so year-to-year use reductions may be different.

2007 Results:

- 2007 established as baseline year
- County efficiency / conservation project history assembled
- Energy Task Force agreed on efficiency goals

2008 Targets:

- 2% energy use reduction in County operations from 2007
- Staff training and education on energy efficiency
- Energy auditing and efficiency / conservation projects

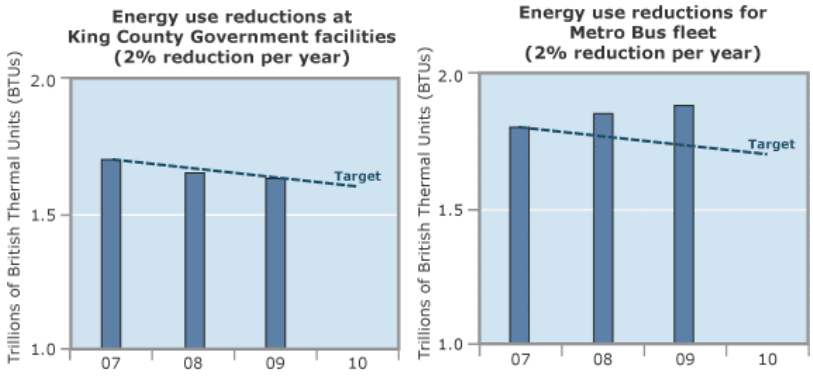
2009 Targets:

- 4% energy use reduction in County operations from 2007
- Continued auditing and implementation of energy saving projects

Influencing factors: Leadership and operational level commitments to energy saving, staff training on methods to save and track savings, and directives to incorporate these activities in their work; financial support for programs and projects that will result in savings; tracking, reporting and rewarding success in energy savings efforts.

Strategy going forward:

- Educate / train staff on energy saving strategies
- Conduct and/or update resource efficiency audits in all county facilities, and develop energy savings action plans for each facility audited
- Develop detailed energy management plans for energy intensive special-purpose facilities such as prisons
- Secure commitments to streamlined funding approaches and for specific projects.
- Pursue utility grant funding and other funding



Technical Notes

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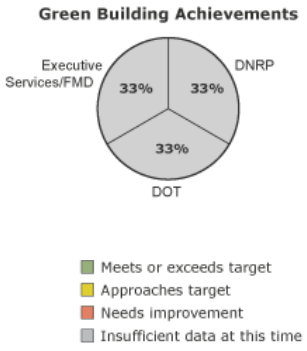
PERFORMANCE MEASURES

GREEN BUILDING ACHIEVEMENTS

2010 Rating:

Percent of King County government construction, renovation or remodeling projects demonstrating compliance with the 2008 King County Green Building and Sustainable Development Ordinance



About This Performance Measure: This performance measure presents the percent of county capital improvement projects that are in compliance with the King County Green Building and Sustainable Development Ordinance. The King County Council adopted the Ordinance in 2008 which calls for new county-built capital projects that are eligible to plan for and attain a Leadership in Energy and Environmental Design (LEED) Gold or other highest possible level rating. The U.S. Green Building Council (USGBC) developed the LEED rating system to provide a benchmark for the design and construction of high performance green buildings. Project teams shall submit a completed LEED checklist, which documents which LEED points the project team expects to achieve. The checklist is submitted to the King County Green Building Team when a project is at 30 percent design and again at project completion.

The Ordinance also requires that all non-LEED eligible King County capital projects incorporate green building and sustainable development practices whenever possible. These projects must submit a Sustainable Infrastructure Scorecard developed by the King County Green Building Team when a project is at 30 percent design and again at project completion. Most county capital projects will fall under the requirement to use the Scorecard.

How is our performance?

2010 Results: Insufficient data at this time

2010 Target: 100%

2011 Target: 100%

Influencing Factors: In 2010, the King County Green Building Team developed the Sustainable Infrastructure Scorecard for non-LEED eligible projects, and Solid Waste Division GreenTools Program staff conducted two county-wide and three division-specific trainings for project managers on the requirements of the Green Building Ordinance and use of the Scorecard. However, in 2010, King County did not have in place a central repository for information about the status of all capital projects. As a result, the degree of compliance with the Ordinance is not clear as of this posting.

Strategy Going Forward: In 2011, the GreenTools Program will provide at least four additional trainings on the Ordinance and Scorecard to the divisions who did not receive training in 2010. In addition, GreenTools staff will provide a number of more in-depth trainings on such topics as: use of specific Scorecard categories, LEED v3, Low Impact Development (LID), renewable energy, and use of a new Green Operations and Management Guidelines Manual (to be developed in 2011). Coordination is needed with the Capital Project Management Work Group to ensure the Green Building Ordinance requirements are included in county capital project manual tables of contents.

Technical Notes: The definition for "demonstrating compliance" with the ordinance changed between 2009 and 2010. In 2009, divisions were considered to be in compliance as they were actively involved in developing the tools needed for implementing the requirements of the ordinance, including the Sustainable Infrastructure Scorecard. Starting in 2010, a project was considered to be "demonstrating compliance" with the ordinance if the project had submitted its LEED checklist or Sustainable Infrastructure Scorecard at 30 percent design and/or at completion, as appropriate for the project.

LEED recognizes performance in key areas of human and environmental health, including: sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, locations and linkages, awareness and education, innovation in design, and regional priority.

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Related Information

Sustainable Building Topics

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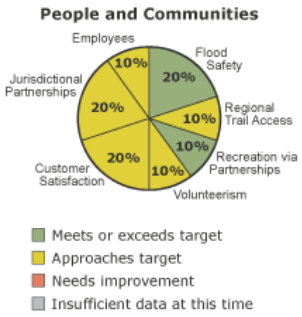
PERFORMANCE MEASURES

PEOPLE AND COMMUNITIES

2010 Rating:

This roll-up measure summarizes the degree DNRP is achieving its **People and Communities goal**:

Protect and improve human health, safety, and wellness — minimize hazards (including toxic exposures and flood risk), maximize opportunities for community building and fitness, build internal capacity for excellence in service delivery.



2010 results

DNRP's rating for the performance measures that support this goal is a yellow — signifying results are within 10 percent of target.

Areas under this goal where DNRP performed well:

- Recreation Service Delivery via Community Partnerships
- Employees
- Flood Safety Program Advancement

Areas under this goal where DNRP performance approaches target:

- Jurisdictional Relationships
- Regional Trail Access
- Customer Satisfaction
- Volunteering

Key influencing factors

Because DNRP is only one of many entities with influence over King County's environmental quality, collaborating with partners is essential to the department's mission. Additional city incorporations and annexations are elevating the role

- **Flood Protection**
- **Regional Trail Access**
- **Recreation Via Partnerships**
- **Volunteerism**
- **Customer Satisfaction**
- **Jurisdictional Parterships**
- **Employees**

Related Information

DNRP Budget And Organization Chart

Natural Resource Lands

Greenprint

Water and Land Resources Division

King County Parks & Recreation

Interactive Stormwater Projects Map

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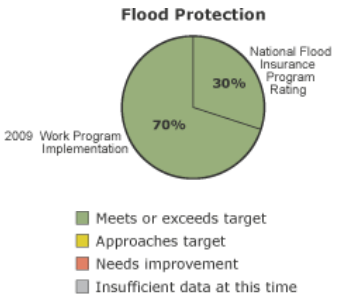
PERFORMANCE MEASURES

FLOOD PROTECTION

2010 Rating:



About this measure: This measure describes the flood hazard risks reduced through the King County flood protection program. King County's flood protection program went through a significant transition in 2007 with formation of the countywide Flood Control District.

2010 results: During 2010 the focus was on long-term levee rehabilitation projects, including project design and property acquisitions necessary to implement high-priority flood risk reduction projects throughout King County. The work continues to be directed by prioritization policies in the 2006 Flood Plan which focus on the consequence, severity, and urgency of flood risks while recognizing the potential for partnerships to leverage FCD funds.

Influencing Factors: King County's advance in flood protection was influenced by the participation, involvement and support of cities through the Basin Technical Committees and the Advisory Committee, as well as actions by the KCFCD Board of Supervisors.

Strategy Going Forward: For 2011 this measure ("Ensure capital priorities are implemented on budget and on schedule") will be amended into two separate measures:

1. Percentage of baseline capital projects on schedule;
2. Percentage of baseline capital projects within 110% of baseline costs.

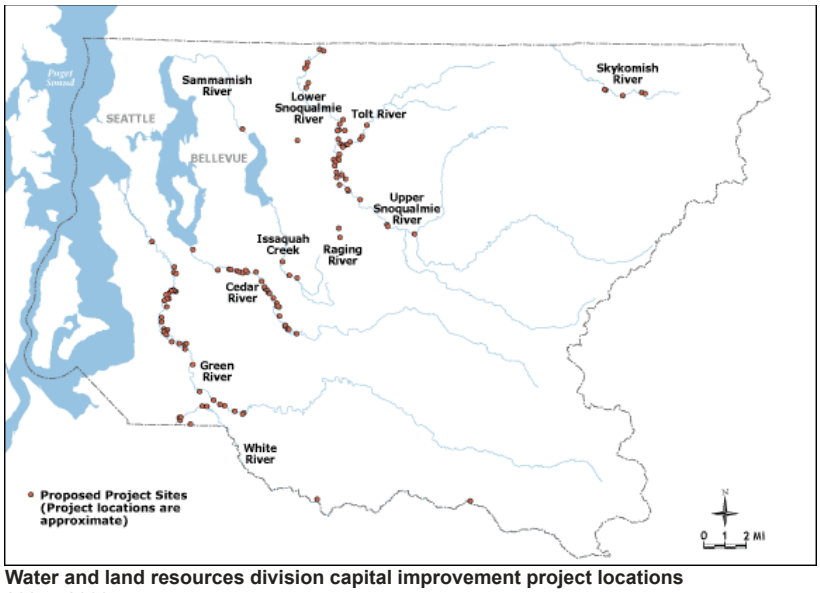
Then intent of the change is to provide information to the Flood District Board of Supervisors and other decision-makers with more discretely measurable indicator of program status.

Background: During 2007 King County took several significant steps to identify and respond to the flood hazards facing our communities. First, in January 2007, the King County Council adopted the 2006 Flood Hazard Management Plan, updating the 1993 Flood Hazard Reduction Plan. This Plan includes an evaluation of flood hazard vulnerabilities and an action plan of capital projects and programmatic activities intended to reduce flood risks throughout the County.

Following adoption of the Plan, the Council then authorized the formation of the King County Flood Control District (KCFCD) under RCW 86.15, including the voluntary establishment of an Advisory Committee of 15 elected officials to provide the KCFCD Board of Supervisors with expert policy advice on the District's work program priorities and budget. The Advisory Committee is supported by King County staff with input and recommendations from Basin Technical Committees comprised of public works and planning officials from cities throughout the County.

Related Information

- How to prepare for a flood
- Flood Buyout and Home Elevation Program
- King County Flooding Topics
- Interactive Hazard Areas Map
- Master Recycler Composter



Water and land resources division capital improvement project locations
2005 - 2009
Click on each river name to download a detailed PDF map.

Technical Notes

For definitions and more detail.

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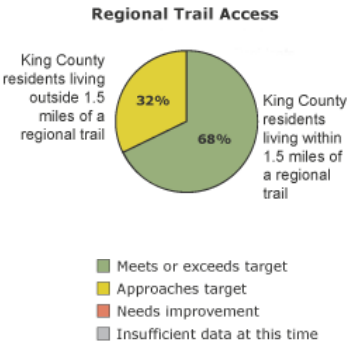
PERFORMANCE MEASURES

REGIONAL TRAIL ACCESS

2010 Rating: ⇔

Residents' proximity to regional trails



About this measure: Regional trails in King County are important public amenities providing active recreation opportunities and regional mobility. The Regional Trails System is 300 miles of paved and unpaved greenways. The King County Parks Division has developed and/or maintains the majority of these facilities. For 2010, four measures were tracked to report on progress toward further improving the King County Regional Trail System:

1. access and proximity to population
2. closing existing gaps in the network
3. redevelopment/upgrading of older existing trails, and
4. ensuring safe trail bridges.

2010 Results: In 2010, consistent with the previous years, 68 percent of county residents live within 1.5 miles of the Regional Trail System, just shy of the target of 70 percent.

An important gap in the Regional Trails System was addressed in 2010. This was the completion of a 1.2-mile-long segment of the Issaquah-Preston Trail east of High Point in the Mountains to Sound Greenway by WSDOT/King County.

Permitting continued for the redevelopment of the Burke-Gilman Trail through Lake Forest Park and for segments of the East Lake Sammamish Trail in Redmond and Issaquah.

To maintain the safety of the County's Regional Trail System, several regional trails bridge/trestle projects were in design and permitting in 2010.

Strategies moving forward in 2011: We continue to improve the Regional Trail System by addressing system distribution, gaps, redevelopment, and bridge resiliency. Redevelopment/upgrading trail segments enhances the network by adding capacity and improving safety.

Two important RTS redevelopment/upgrading projects will be initiated in 2011 along with several important smaller projects. A 2.0-mile-long segment of the Burke-Gilman Trail through Lake Forest Park will be redeveloped to meet current RTS standards and improve safety. This will include trail widening, new design, pavement, and related structures such as retaining walls and street crossings. In addition, a 1.2-mile-long segment of the paved Master Planned East Lake Sammamish Trail will be constructed in Redmond. This northernmost segment of the ELST will also include a trailside parking facility and other user amenities. Other important redevelopment projects include redevelopment of a 0.25-mile-long segment of the Sammamish River Trail and two short segments of the Burke-Gilman Trail in Bothell.

Design and permitting activities will continue on other King County regional trail trails to fill gaps in the trails network including the Soos Creek Trail, Lake-to-Sound Trail segments, and Issaquah segment of the Master Planned East Lake Sammamish Trail.

Bridge work underway in 2011 includes the repair of the Snoqualmie Valley Trail-Tolt River Bridge, a significant bridge/trestle project. Design and permitting for a repair of the Griffin Creek Bridge will also be undertaken with expected construction in 2012.

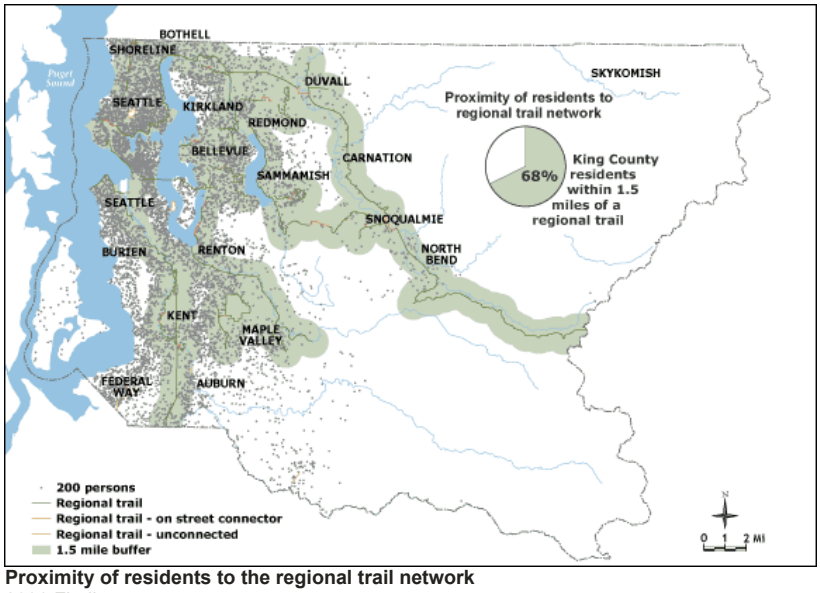
Influencing Factors: Regional trail facilities are similar to roadways - lengthy paved or compacted gravel thoroughfares running in linear open space corridors. Like roads, their development process includes planning, design, permitting, and construction. This process can take years and since many trails are located within or near sensitive habitats where development requires more unique structures, additional permits, and extensive environmental mitigation.

Often the missing links in the system require expensive elements such as bridges over roads or waterways, or navigation around sensitive areas such as wetlands. Additionally, in urban areas, existing build-out presents substantial challenges to

Related Information

- Regional Trail Access equity information
- King County Regional Trails
- King County Bike Map
- Walking Maps in King County
- Interactive Stormwater Projects Map

creating new trail corridors do to the lack of readily available land.



Proximity of residents to the regional trail network
2006 Findings
Click to download the PDF version.

Technical Notes

For definitions and more detail.

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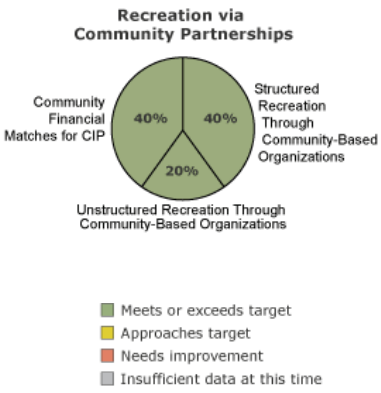
PERFORMANCE MEASURES

RECREATION SERVICES PROVIDED THROUGH COMMUNITY PARTNERSHIPS

2010 Rating:

Number of users benefiting from structured recreational opportunities provided by community-based partners:

- **2007:** 12,100
- **2008:** 28,500
- **2009:** 33,400
- **2010 actual:** 35,000
- **2010 target:** 42,000
- **2011 target:** 50,000



Number of users benefiting from non-structured recreational opportunities provided by community-based partners:

- **2007:** 12,500
- **2008:** 34,300
- **2009:** 36,000
- **2010 actual:** 55,000
- **2010 target:** 50,000
- **2011 Target:** 70,000

Financial match leveraged through community-based partners:

- **2007:** $2,200,000
- **2008:** $6,000,000
- **2009:** $5,150,000
- **2010 actual:** $1,692,500
- **2010 target:** $5,192,500
- **2011 target:** $17,800,000

About this measure: This measure considers the success of King County Parks Division efforts to expand public recreation opportunities using community-based partnerships. The Community Partnerships and Grants (CPG) Program is the primary tool that Parks uses to develop community-based partnerships. This measure includes the number of public users benefiting from new community-based public recreation development projects and the amount of additional community investment leveraged for construction, operations, and programming.

Influencing factors: Factors influencing successful community-based partnerships include wherewithal of community-based organizations, flexibility in King County's CPG grant parameters, overall capital investment, availability of land for recreation development, and commitment to the comprehensive King County empowerment of community-based partner organizations.

Specifically, factors influencing the 2010 actual measure of users benefiting from structured recreational opportunities and the levels of financial match leveraged through community-based partners include the delay of certain projects, including the Sammamish Rowing Association Boathouse at Marymoor Park and the turf conversions at Ravensdale, among others. Factors influencing the 2010 actual measure of users benefiting from non-structured recreational opportunities include the exceptional popularity of some certain completed projects, including the Mountain Bike Park at Duthie Hill.

Related Information

Community Partnerships and Grants

Propose a community project

Strategy going forward: The division will continue to make strategic investments via the Community Partnerships and Grants (CPG) Program. Increasingly seek acquisition opportunities that support new community-based recreation development projects.

2011 targets are influenced dramatically by the completion and opening of several large projects, including the Sammamish Rowing Association Boathouse at Marymoor Park, the turf conversions at Ravensdale and Big Finn Hill, the third phase of the Duthie Hill Mountain Bike Park, and the Technology Access Foundation Community Center at Lakewood Park, among others. Several of these projects include significant community investments, dramatically increasing the 2011 target for the leveraged financial match.

Technical Notes

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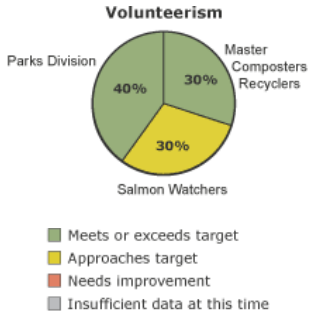
PERFORMANCE MEASURES

VOLUNTEERISM

2010 Rating: ⇔

Parks Division

Volunteer hours

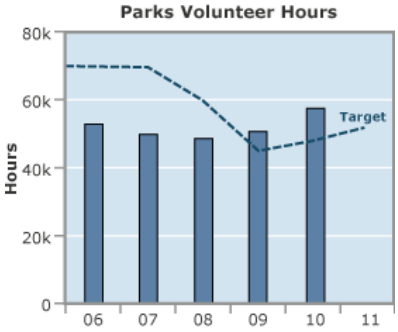


About this measure: King County Parks engages the community, educates park visitors, and provides basic enhancements to the park system and the environment through the volunteer program. Volunteers donate their time and labor to help improve and maintain community green spaces, recreational areas and natural resources that make up King County Parks. In addition to the added resources volunteers bring to park projects, people leave with a greater knowledge and appreciation for the King County park system and natural lands, in general.

2010 results: 48,000 volunteer hours

2010 target: 57,400 volunteer hours

2011 target: 52,000 volunteer hours



Influencing factors: Volunteer hours increased significantly from 2009 and subsequently far surpassed the 2010 target. This increase can be attributed to the arrival of two AmeriCorps National Civilian Community Corps (NCCC) teams during the year and the success of establishing a process that captures hours from large user groups. Notable program successes include the following:

- The 57,400 volunteer hours for the year were provided by the incredible support of more than 8,550 caring citizens, representing over 80 different groups and numerous individuals, in more than 460 volunteer events.
- Volunteers planted approximately 20,000 native trees and shrubs at 11 King County sites. These plants help to restore wetlands and streams, forested floodplains and wildlife habitat and add vital diversity to our forests. They also help to enhance natural areas within our active parks, making them more aesthetically pleasing, while increasing natural wildlife habitat within these communities.
- In the first year that Parks applied for an AmeriCorps NCCC team, the division was awarded two teams, one in the early summer and another in late fall. The two teams, with a total of 21 members, provided over 4,500 hours of exemplary volunteer service in 2010.
- Another first, the Washington Service Corps approved an AmeriCorps Individual Placement (IP) service volunteer in the division. The volunteer began her 10½-month term with Parks in September 2010, attributing to an increase in the number of events and an improvement in preparation and quality of restoration events.

Strategy going forward: : The program will continue its efforts to build upon increasing volunteer recruitment. While economic hard times continue, so does the spirit of community, so richly demonstrated by the Parks volunteer force. Strained Parks funds also place extra importance on the efforts and success of the Volunteer Program.

Efforts will be made to increase volunteerism by local residents for nearby park lands. However, competition for volunteers' time continues to increase so continuing to improve and expand volunteer recognition efforts is of utmost importance. Volunteer appreciation items will include those that help in the division's branding efforts.

Efforts will be made to work within the Parks system to educate and encourage staff to support and manage an increasing number of volunteer events, increasing the volunteer force and helping to create successful partnerships with Parks staff. Strengthening existing partnerships with communities and organizations while building new ones remains a key component to the success of this program and will continue to be improved and expanded. Efforts to enhance the volunteer experience, including time planned for enjoying the area where the volunteers have worked, will be incorporated.

Related Information

- King County Volunteer
- The Dirt: DNRP Calendar of Events
- Volunteer at King County Parks
- Salmon Watchers Program
- Salmon Watcher Program, Training Slideshow

In 2010, the number of volunteer hours increased significantly without a corresponding rise in the number of events. Revisions to data collection are underway, allowing for more-detailed and efficient data tracking methods, which will allow for analysis of trends in the types of groups involved and projects and locations preferred currently in the program. This will help to examine relationships with individuals and groups in order to encourage volunteers to return. It will also help in strategizing for recruiting new volunteers.

The Park and Trail Ambassador program remains a small, solid group of caring citizens committed to helping Parks. Concerted efforts to recruit new members and reinforce appreciation and recognition of those currently active will be a priority.

Because the program's target was surpassed this year, this coming year's target is increased enough to stretch our efforts while still being attainable.

Solid Waste Division (SWD)

Number of Public Contacts Made by Volunteers Trained by the Master Composter Recycler (MRC) Program Annually

About This Performance Measure: This measure represents the number of public contacts made each year by volunteers trained by the Master Recycler Composter Program (MRC). The volunteers receive free training in waste prevention, recycling, home composting, alternatives to household hazardous wastes, and solid waste impacts on climate change. In return, participants agree to share their knowledge and skills through various community outreach efforts, such as staffing a "Recycle More" information table at the Issaquah Salmon Days festival.

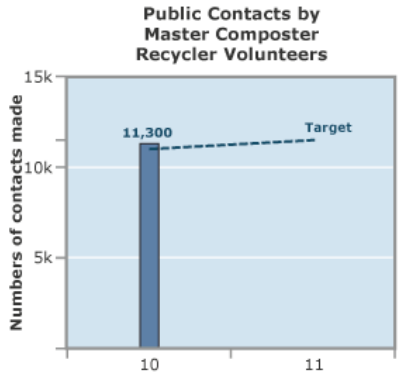
2010 Results: 11,360

2010 Target: 11,000

2011 Target: 11,500

Influencing Factors: The number of public contacts made depends on the size and number of events staffed. The MRC Program targets events that typically draw the largest number of attendees. The program fills as many requests for volunteers as possible, prioritizing the larger events that are held in focus cities, which in 2010 were SeaTac, Kent, Federal Way, Renton, Snoqualmie, Tukwila and Kenmore.

Strategy Going Forward: Events staffed in 2011 will include large-scale community events such as the Issaquah Salmon Days or Kent Cornucopia Days. MRC volunteers will also give PowerPoint presentations to community groups, and staff tables at retail partners such as Bartell Drugs to provide information on kitchen compost containers and biobags, for example. The focus cities for 2011 will be SeaTac, Kent, Maple Valley, Renton, Tukwila and Kenmore. The program estimates that 130 events will be staffed in 2011.



Water and Land Resources Division (WLRD)

Salmon watcher program

About this measure: Salmon Watcher is a multi-jurisdictional effort focused at protecting a Pacific Northwest treasure and educating the community in the process. The fourteen year old program involves volunteers watching streams for spawning salmon in King and Snohomish counties. This effort mainly focuses on waters within the Lake Washington watershed.

2009 target: 130 sites on 55 streams

2009 results: 100 sites on approximately 42 streams were watched in 2009. The number of new recruits went up; however, many doubled up on the sites they chose to watch, so fewer sites were watched.

2010 targets: 115 sites on 45 streams

The number of sites and their locations vary from year to year. For example, in 2007, 134 sites were watched on streams. As of 2009, a total of 442 sites on approximately 146 streams have been watched in the program to date. Additionally, since we started collecting information on citizen contacts in 2001, volunteers have talked with approximately 8,600 citizens at their stream sites.

Influencing factors: The Salmon Watcher program is voluntary and new watchers enter the program upon their interest and request. Budget allocations and proactive recruitment of watchers can influence how many and the location of monitoring locations.

Strategy Going Forward: Continuing to educate property owners with salmon streams on their property by participating in the program about things they can do to improve aquatic habitats.

Technical Notes

For definitions and more detail.

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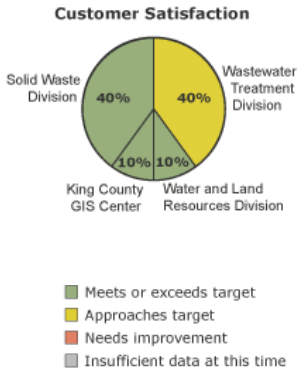
PERFORMANCE MEASURES

CUSTOMER SATISFACTION

2010 Rating: ⇔

About this measure: Customer service is a cornerstone of good performance. DNRP uses customer feedback mechanisms to:

- Understand changes in customer preferences, priorities and price sensitivities
- Assess program strengths and weaknesses and perceptions of service levels
- Guide program adjustments based on finding



Many of our larger programs have had customer feedback mechanisms in place for several years. The customer survey findings are used to steer program adjustments and ensure that changes produce the intended results.

For the most part, DNRP divisions have selected specific groups of customers or neighboring business and residents to survey about services and programs. Some of our customer service questionnaires are self-administered and others involve the use of consumer research firms.

Solid Waste Division (SWD)

Transfer station customers

2009 Results: There was no survey in 2009

2009 Target: Not applicable

2010 Target: There will be no transfer station customer satisfaction survey in 2010

Influencing Factors: Not applicable

Strategy Going Forward: Transfer station customer surveys are being conducted every three years. The next survey will be conducted in 2011. The same high level of service delivered in 2008 and 2009 will continue in 2010 and 2011

Technical Notes: Surveys are ranked on a 1 - 5 scale where 5 is excellent

Household hazardous waste facility customers

About this Performance Measure: The Local Hazardous Waste Management Program in King County (LHWMP) operates three fixed household hazardous waste (HHW) facilities (located in North Seattle, South Seattle and at the Factoria transfer station in Bellevue). In 2010, the HHW facility at Factoria had 13,615 customers and collected 331 tons of hazardous waste. The other two fixed facilities are run by the city of Seattle. The LHWMP also conducts Wastemobile collection events in

Related Information
About DNRP
About SWD
About WLR
Parks Feedback

cities around the county. In 2010, the Wastemobile had 14,153 customers and collected 471 tons of hazardous waste.

2010 Results: There was no survey in 2010

2010 Target: Not applicable

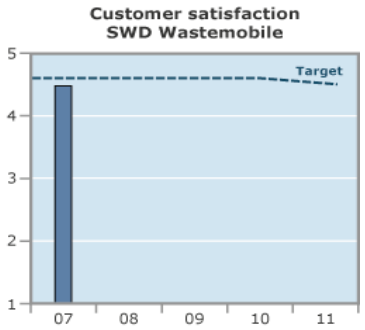
2011 Target: Not applicable

Influencing Factors: Not applicable

Strategy Going Forward: The King County Solid Waste Division, as part of the LHWMP, is exploring several options to increase hazardous waste disposal service to South King County residents in 2011 and 2012. The next customer service survey is planned to be conducted in 2012. On-site surveys will be conducted at the fixed HHW facilities and at selected roving and Auburn SuperMall wastemobile events. Random phone surveys will also accompany the on-site surveys.

This survey used to be conducted every other year; however, the results were not changing much between years so the length of time between surveys was extended. The next survey was to have been conducted in 2011 in order to adequately capture service changes, including the addition in 2009 of twice monthly wastemobile service at the Auburn Supermall and a ban in 2008 on accepting latex paint. Due to budgetary issues, the survey has been delayed until 2012.

Technical Notes: Surveys are ranked on a 1—5 scale where five is excellent.



Solid waste education program

About this Performance Measure: In the 2009-2010 school year, SWD reached 22,000 elementary students through an assembly program and over 22,700 elementary and secondary students through classroom workshops. Teachers find the program and workshops to be highly effective in educating students about how reducing waste and recycling benefit the environment. Teachers are surveyed on whether they think the assembly program and elementary and secondary school workshops enhance student understanding of resource conservation.

2009 - 2010 Results: 4.66 (on a 1—5 scale where 5 is excellent)

2009 - 2010 Target: 4.60 (on a 1—5 scale where 5 is excellent)

2010 - 2011 Target: 4.60 (on a 1—5 scale where 5 is excellent)

Influencing Factors: The overall rating rose slightly from 4.61 in 2009 to 4.66 in 2010. Teachers reported that the assembly program helped them meet their curriculum goals as well as Washington State Grade Level Expectations and Essential Academic Learning Requirements.

Strategy Going Forward: SWD creates a new assembly program every three years. Each three-year run is an attempt to bring the assembly to as many of the nearly 200 elementary schools in the county as possible. Each new assembly reflects content and themes that are current with the division's key messages. In addition, the content is consistent with Washington State grade level expectations. Fall 2011 marked the beginning of a new three-year run.

Technical Notes: Surveys are ranked on a 1-5 scale where five is excellent. Results are reported for the school year, not the calendar year. For example, the results reported for 2010 are the results for the 2009-2010 school year.

Water and Land Resources Division (WLRD)

WLRD Drainage Customer Satisfaction

2010 target: 90 percent of customer service questions are responded to favorably

2010 results: 83% favorable responses

2011 target: new approach for 2012 implementation

Influencing factors: The majority of our negative responses are due to situations where there is no program or funding to address the complaint or the problem is referred to another County agency and the customer is not satisfied with that agency's response. We have also received customer survey card responses from residents who are disgruntled with government, taxes, property rights, etc.

Strategy going forward: This measure is being incorporated into a Division wide measure for 2012 implementation. During 2011, the division will develop the means, methods, and techniques to conduct a Division wide customer satisfaction program. The division's Stormwater Services Program will continue efforts to improve customer services and participate in developing a division-wide system.

Wastewater Treatment Division (WTD)

Wastewater Treatment Plant Neighbors

About this measure: This measure addresses the percent of business and residential neighbors who consider wastewater treatment plants in their area to be a good neighbor.

2010 results: 67.70%

2010 target: ≥ 75%

2011 target: ≥ 75%

Influencing factors: Overall, both wastewater treatment plants, West Point and South Plant, have good relationships with their neighbors. The most common reasons residents and businesses say that King County has been a good neighbor continues to be the lack of noticeable impacts of the treatment plants, considering factors such as visibility of the facilities, odor, truck trips, landscaping, environmental impact and responsiveness to community concerns.

"Bad smell" is the most common negative impact residents experience.

Strategies going forward: The top two priorities continue to be exploring new methods of odor control and responding to complaints within 24 hours.

WTD Customer Service Satisfaction by Local Sewer Agencies

About this measure: This measure tracks the degree of local sewer agency customer satisfaction with the customer service they receive from WTD staff, as rated in the annual Customer Feedback Survey.

2010 results: 3.73 (on a 1—5 scale where 5 is excellent)

2010 target: ≥ 4.0 (on a 1—5 scale where 5 is excellent)

2011 target: ≥ 4.0 (on a 1—5 scale where 5 is excellent)

Influencing factors: The overall rating of customer service satisfaction has remained fairly stable over the previous five years, on average, oscillating within a half point. The slightly higher satisfaction ratings in 2007 and 2008 may be due to the Division Director holding individual meetings with each component agency to improve communication and relationships with our component agency customers, and following up on issues of concern to the agencies. The highest rated factors making up the total customer satisfaction score were professionalism and courteousness of WTD staff, technical knowledge of staff, and staffs' knowledge of administrative procedures and requirements.

Strategies going forward: WTD will evaluate the complete results from the 2010 customer feedback survey, and evaluate any areas where needs for improvement are indicated. Through follow up with the customer agencies, WTD will identify actions to be implemented to make improvements and further increase customer satisfaction with WTD overall.

Technical Notes

For definitions and more detail.

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PERFORMANCE MEASURES

JURISDICTIONAL PARTERSHIPS

2010 Rating: ⇔

Water and Land Resources Division (WLRD)

Number of Signers/Partners to Salmon Recovery Inter-local Agreements

About this measure: This measure tracks the number of member governments (including jurisdictions, tribes and King County) that have signed inter-local agreements (ILAs) for salmon recovery plan implementation. Partners that sign inter-local agreements for salmon recovery are organized around state-defined geographical areas called Watershed Resource Inventory Areas (WRIAs). ILA partners work together to implement salmon recovery in their river basins. They also cost-share on WRIA coordination services provided through King County. Some governments, including King County, span more than one WRIA and are thus party to more than one inter-local agreement. In such instances they are counted multiple times to reflect the number of agreements they participate in and pay into.

Status: There are 50 eligible ILA partners within King County's three participating WRIAs (WRIA8, WRIA9 and WRIA7/Snoqualmie Watershed). As of 2010, all 50 potential partners have signed inter-local agreements.

Target: We are currently at full participation. Our target going forward is to retain all 50 partners.

Influencing factors: King County's reputation as a service provider and partner in delivering services is crucial toward the success of this measure. Other jurisdictions and Indian Tribes are less likely to sign agreements to work with the county and cost share on salmon recovery coordination services if the county cannot deliver the services it has agreed to. Additionally, it is critical to have the continued regional political focus on the importance of salmon recovery and watershed protection in the Puget Sound region.

Strategy going forward: King County will continue to demonstrate quality service and success in delivering the cost-shared inter-local work. Future strategies include integrating with regional Puget Sound Partnership actions, advocating regional implementation of salmon recovery plans, and facilitating the development of funding sources for watershed protection and restoration activities.

Solid Waste Division (SWD)

Number of cities that are members of the Metropolitan Solid Waste Management Advisory Committee (MSWMAC)

About this measure: This committee advises the King County Department of Natural Resources and Parks (DNRP) Solid Waste Division (SWD) on key regional issues.

2010 Results: 22

2010 Target: 22

2011 Target: 22

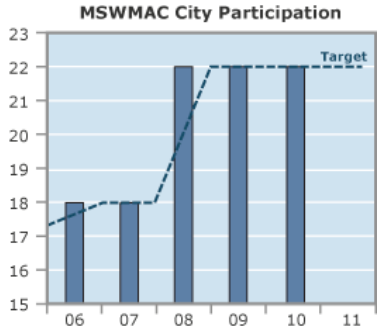
Influencing Factors: Cities and the county are in discussions to extend the solid waste Interlocal Agreements for another 20- to 30-years beyond their current expiration date of 2028. Continuing the collaborative working relationship of the last six years, the cities on MSWMAC will be giving input on SWD's rate proposal and on the siting process for the proposed Northeast and South county transfer stations.

Strategy Going Forward: The Solid Waste Division (SWD) will continue to collaborate with MSMWAC in 2011. MSWMAC will be giving input into SWD's rate proposal and Northeast/South transfer station siting process and will identify issues for a revised Interlocal Agreement (ILA). In particular, SWD will work with MSMWAC to ensure that the collaborative planning process established by the ordinance that created the committee is institutionalized in the new ILA.

Related Information

- Salmon Recovery
- IRAC - Interagency Resource for Achieving Cooperation
- Join IRAC
- Puget Sound Fresh
- Groundwater Protection
- Become a Parks Partner
- Northwest Natural Yard Days
- Groundwater home page
- The Groundwater Story
- Map of Groundwater Management Areas
- Information about King County's Groundwater Management Areas
- WRIA information

Technical Notes: MSWMAC was created to advise the Executive, the Solid Waste Interlocal Forum and the King County Council in all matters relating to solid waste management and to participate in development of the transfer and waste export system plan.



Wastewater Treatment Division (WTD)

Local Jurisdiction Partnerships

Quality of Contract Services Rated by Local Agencies

About this measure: This measure tracks local sewer agency satisfaction with the quality of their contract services with WTD, as rated in the annual Customer Feedback Survey.

2010 results: 3.63

2010 target: ≥ 4.0 on a 1-5 scale

2011 target: ≥ 4.0 on a 1-5 scale

Influencing factors: Ratings for this measure have fluctuated from year to year since 2001, showing no clear upward or downward trend. In any particular year there may be specific factors or activities underway by the division that influence the local agencies' satisfaction with the contract services they receive from WTD. In 2006 a low score of 3.29 was received, which was likely attributed to the negotiations of contract extensions that were underway at the time with the local agencies. In 2007 the score rose to 3.62, which may have reflected the positive outreach efforts taken by the new Division Director, who visited individually with each of the local agencies to discuss their concerns and hear their ideas. In 2008 the low rating of 3.31 may be attributable to somewhat controversial program initiatives and projects that are underway, such as construction of the Brightwater Treatment Plant, and the development of a Reclaimed Water Comprehensive Plan. In 2010 the rating remained constant at 3.63.

Strategies going forward: While ratings of satisfaction with wastewater contract services fluctuates from year to year, WTD continues to maintain open dialog on all major projects and initiatives with the contract customer agencies via the Metropolitan Water Pollution Abatement Advisory Committee (MWPAAC) and its technical and financial subcommittees, which regularly meet with WTD staff and management to provide input to WTD operations, finances and capital programs and projects. WTD continually works to improve relationships, trust and open communication with its customer agencies.

Local Agency Satisfaction with the MWPAAC (Metropolitan Water Pollution Abatement Advisory Committee) Process

About this measure: This measure provides feedback to WTD on the level of satisfaction among our local agency customers with their participation in MWPAAC, an advisory committee of local sewer agencies. Data for the measure comes from the annual Customer Feedback Survey, and the score is rolled up from several questions that gather feedback about the quality of meetings, the quality of information received from the WTD Director and staff, the opportunity to express opinions, needs and concerns, and the ability to obtain needed information from the division.

2010 results: 3.92

2010 target: ≥ 4.0 on a 1-5 scale

2011 target: ≥ 4.0 on a 1-5 scale

Influencing factors: This measure now has three years of data collected from the annual Customer Feedback Survey. The score increased from 3.44 for 2007 to 3.67 for 2008, increased again to 3.94 for 2009 and dropped slightly to 3.92, in 2010, showing a steady and sustaining increase in overall satisfaction with the quality of MWPAAC meetings and the quality of

information received from WTD's Director and staff on important programs, projects and initiatives. Factors such as the quality of Director's reports, the ability of the local agencies to express their opinions, needs and concerns, and the ability to get the information they need from WTD were rated the highest.

Strategies going forward: WTD continually seeks ways to improve MWPAAC meetings, to make them as productive, useful, informative and convenient as possible; and to provide reports and information in a timely and thorough manner to the local agencies. In the past two years, WTD has restructured the format of meetings and added a professional facilitator. In 2009 WTD changed the location, time, and duration of the monthly meetings to increase convenience for most attendees. Balancing a central location with traffic and parking concerns is a key consideration, as attendees must drive from all parts of the County's sewer service area, including some who come from Snohomish County in the north and as far south as Auburn and Algona, to attend the meetings.

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For definitions and more detail.

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PERFORMANCE MEASURES

EMPLOYEES

2010 Rating:

About these measures: These measures look at the degree that targets are met for employee workplace practices and safety factors. The employee survey ratings detail trends in employee views on workplace practices, effectiveness, accountability, resource management and satisfaction. Employee accidents and lost time information are tracked by Human Resource personnel and help inform priorities for procedure and equipment improvements as well as training and safety education.

Ratings from 2008 employee survey

Satisfaction Index: 3.63 on a 1-5 scale, 5 as best

Workplace Practices Index: 3.18

Availability of Resources Index: 3.58

Role of Employee Index: 4.04

2008 employee rating targets

Satisfaction Index: 3.75 on a 1-5 scale, 5 as best

Workplace Practices Index: 3.5

Availability of Resources Index: 3.75

Role of Employee Index: 4.2

Most ratings were similar to prior years, although employees rated the following statements more favorably in 2008 than in prior surveys:

"Employee are held accountable for their performance at work," and

"Overall, I'm satisfied with the level of involvement I have in decisions that affect my work."

Influencing factors: Overall, the ratings of DNRP employees on these survey questions have remained steady since the survey was first conducted in 2000. The slight increase in ratings for the accountability question is likely a result of an increased focus on supervisory responsibilities and addressing employee performance and behavior. Improvements in supervisory skills, labor relations and perceptions of fairness have likely contributed to the improved rating on the job satisfaction question.

Strategy going forward: DNRP's Human Resource work plans continue to focus on strengthening performance management, accountability, supervisory development and collaborative relationship with unions. This focus was developed in response to the concerns and perceptions expressed through prior employee surveys.

2008 employee safety results

2008 results: Total incidents with injuries: 164

Average days lost per injury: 13.2

2008 targets: Total incidents with injuries to fewer than 175

Average days lost per injury: 16

Influencing factors: 2008 was a positive year for accident and injury reduction. We are seeing positive trends in measurable areas of health and safety, in large part due to investments in safety education, training and process improvements.

Related Information
About DNRP
DNRP Annual Report
GIS Center
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Parks Business Plan

DNRP has almost 1,800 regular employees, many of whom perform challenging tasks, including operating and maintaining complex infrastructure systems that run continuously, such as wastewater treatment plants and a wide variety of heavy machinery. Employees also respond to floods, chemical spills and illegal dumping, while monitoring conditions in deep woods, fast-flowing rivers, high peaks and in Puget Sound.

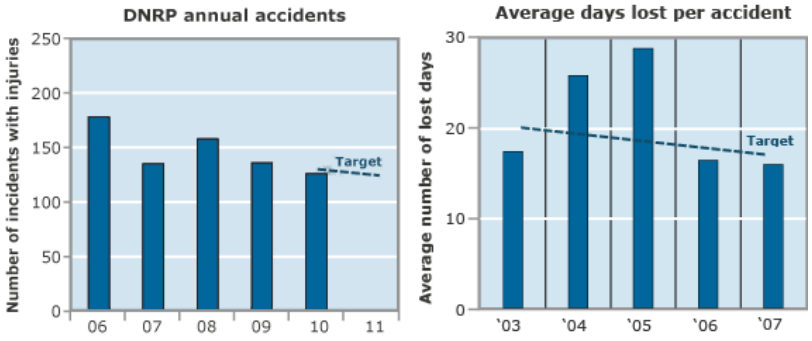
The decline in lost days due to injuries can be in part attributed to increasing light duty assignments for injured employees, procedure and equipment improvements, and increased safety ethic among field employees.

The aging of DNRP's workforce also affects future workplace accidents and injuries; as employees age, many of the physically demanding jobs create the likelihood of work-related injuries and chronic conditions.

Strategy going forward: DNRP will continue to foster a safety ethic and make safety training a high priority. Emphasis will be placed on training related to safe procedures when performing tasks that lead to slip/trip hazards, or can create repetitive stress injuries. The King County Healthy Incentives program is instrumental in promoting a healthy lifestyle, which translates to employees who are more capable of performing physically demanding jobs.

At the line operation level, we will advance out comprehensive approach to safety, with the following 5 focus areas:

1. **Build visible safety** by addressing safety issues as they arise, in planning, new equipment selection, project management.
2. **Act on the three P's:**
    a. Preparation (and planning)
    b. Processes (policy and procedures, task lists, check lists)
    c. Prevention (identifying and correcting hazards before they become incidents).
3. **Correct unsafe behavior** when it happens
4. **Correct unsafe conditions** and known hazards quickly
5. **Review all accidents** with long-term elimination of accidents in mind.



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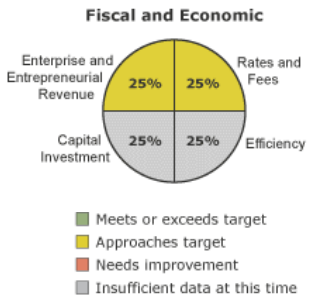
PERFORMANCE MEASURES

FISCAL AND ECONOMIC

2010 Rating:

This roll-up measure summarizes the degree DNRP is achieving its **Fiscal and Economic goal**:

Support King County's economic development goals and ensure ratepayer value through effective, efficient and equitable program implementation.



2010 results

DNRP's rating for the performance measures that support this goal is a yellow — signifying results are within 10 of target.

Areas under this goal where DNRP performed well:

- Entrepreneurial and Enterprise revenue.

Areas under this goal where DNRP performance approaches target:

- Rates and Fees
- Efficiency
- Capital Investment

Key influencing factors

Since 2002, the Parks Division has been empowered to engage in "good-government" initiatives and embrace non-traditional ways of doing business. This transformation from a centrally funded service provider to an entrepreneurial, performance-driven organization has help ensure that parks serve to enhance communities and the region's high quality of life, even during tight fiscal times.

The Wastewater Treatment Division has developed a productivity initiative pilot program, a joint labor and management effort within the division that could save ratepayers as much as $67 million over 10 years. The pilot program allows employee flexibility to apply some business practices used in private industry to cut operating costs, increase productivity and continue a high level of service and environmental protection for county residents.

The Solid Waste Division has evaluated a range of options to increase efficiencies in support of stable rates. Transfer stations have been reconfigured to reduce staffing requirements, while outreach and partnership efforts have led to higher levels of residential recycling and lower residential solid waste volumes.

Strategies going forward

All DNRP divisions will continue to explore and implement opportunities to increase operational efficiencies. Capital investments are being made with an eye toward energy efficiency and reducing operations and maintenance costs.

The Wastewater Treatment Division has expanded its pilot productivity initiative to include capital projects. The Solid Waste Division has plans to reduce contracting costs by bringing recyclable materials hauling in-house, while the Parks Division will continue building partnerships to enhance revenue generation and reduce operation and maintenance costs.

DNRP is enhancing training efforts to further build workforce capacity.

More information about King County's Efficiency, Rates and Fees, Employees, and Entrepreneurial Revenue is available by continuing to the pages for these measures:

- **Rates and Fees**
- **Efficiency**

Related Information

About DNRP

DNRP Annual Report

DNRP Budget And Organization Chart

GIS Center

About SWD

About WLR

Parks Business Plan

- **Capital Investment**
- **Entrepreneurial Revenue**

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PERFORMANCE MEASURES

RATES AND FEES

2010 Rating: ⇔

About this measure: DNRP seeks to minimize rates and fees while maximizing value of service. Major programs track rates and fee against the level of inflation and benchmark against similar service providers. For inflation, we look at changes in the consumer price index over a 10 year time horizon.

Because benchmarking against similar service providers and jurisdictions is time intensive, this is done only every other year for most of our programs. Comparative programs are selected for proximity, range of services, and relative cost of doing business.

Wastewater Treatment Division (WTD)

Monthly residential wastewater service fee increases vs. Consumer Price Index increases

2010 Wastewater Rate: $31.90

2010 Target: rate if it had risen by rate of inflation from the 1998 rate: $24.31

Difference: $7.59 or 31.2 percent

Influencing factors: WTD is in a period of major construction activity as it invests in future service, including construction of the Brightwater Treatment Plant and its conveyance system.

Strategy going forward: WTD has been implementing a productivity initiative to reduce operating costs and reduce future rate pressure. The current two-year rate for 2009-2010 is $31.90. The two-year rate for 2011 and 2012 will be $36.10.

Rate vs. comparable agencies

Rate comparisons provide qualitative information. As a result, there are no targets established for this measure. The wastewater service rate in 2010 was slightly higher than the $31.40 average of fees from other jurisdictions and 6.2% higher than the $30.04 median.

There are significant differences among these utilities in the extent and level of services they provide. For example, some may not provide full secondary treatment or recycle biosolids as extensively as King County. Additionally, the division is in a period of major construction activity as it invests in future service, including construction of the Brightwater Treatment Plant and its conveyance system.

WTD has implemented a productivity initiative program aimed at reducing operating costs and increasing savings to ratepayers. The productivity initiative allows employee flexibility to apply business practices used in private industry to cut operating costs, increase productivity, and continue a high level of service and environmental protection for county residents. While the Productivity Initiative will sunset in 2011 and new program is under development.

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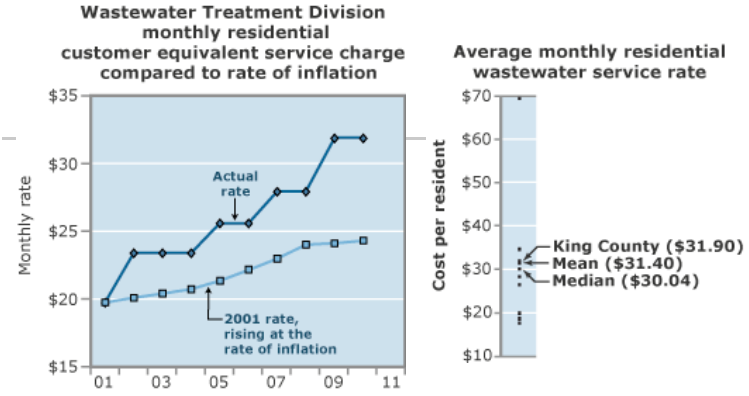
Parks Business Plan



Solid Waste Division (SWD)

Comparison of tip fee with other agencies that provide comparable services

2010 Results: As of December 2010, the King County solid waste tip fee of $95.00 per ton was below the mean ($114.37) and the median ($112.94) of the tip fees of seven comparable jurisdictions (including King County).

2010 Target: For the solid waste tip fee to continue to be below the mean and the median of other, comparable jurisdictions.

2011 Target: For the solid waste tip fee to continue to be below the mean and the median of other, comparable jurisdictions.

Influencing Factors: SWD tip fee remained at $95.00 per ton in 2010 which was low, relative to the rates of most other jurisdictions.

Strategy Going Forward: The solid waste tip fee is currently expected to remain at $95.00 through 2011.

Technical Notes: The other agencies included in this measure are solid waste utilities in Clark, Pierce, Snohomish and Spokane Counties, and the Cities of Seattle and Tacoma. The mean and median for this measure were calculated using the flat, base rate without surcharges and taxes. The rates for each of the jurisdictions are the same for all customer classes (resident, non-resident and commercial) except for the city of Tacoma, which has different rates for different customer classes. The rates used in this measure for the city of Tacoma are the city resident and commercial rates.

Solid Waste Division tip fee compared to rate of inflation

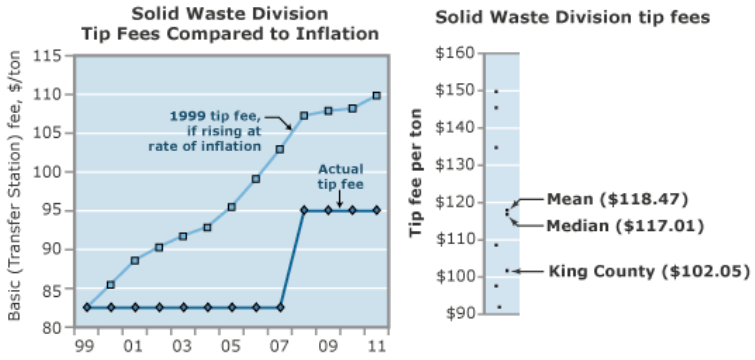
2010 Results: The Solid Waste Division tip fee was lower in 2010 than if it had risen at the rate of inflation since 2000.

2010 Target: For SWD tip fee to be lower than if it had risen at the rate of inflation since 2000.

2011 Target: For SWD tip fee to be lower than if it had risen at the rate of inflation since 2000.

Influencing Factors: SWD implemented operational efficiencies in 2010 to keep costs down, including reducing hours at some transfer stations and using tippers instead of walking floor trailers to dispose of solid waste at the Cedar Hills Regional Landfill. This helped enable the tip fee to remain at $95.00 per ton which was lower than it would have been if it had risen at the rate of inflation since 2000.

Strategy Going Forward: SWD will continue to implement operational efficiencies in 2011 to keep costs down, including continuing reduced hours at some transfer stations and use of tippers at the landfill.



Water and Land Resources Division (WLRD)

Comparison of surface water management fees with inflation

About this measure: This measure tracks surface water management fees compared to inflation rates over the last 10 years.

2009 Results: Surface Water Management fees have risen less than the rate of inflation. In 2007, the King County Council approved an increase to the surface water management fee, bringing up the annual charge to $111 per residential parcel. The increase raised revenue to compensate for the eroding effects of inflation. Since 2002, inflation based on CPI has increased by an estimated 20%. King County Office of Management and Budget projections suggest that inflation will rise by another 3.2% through 2010.

2010 results: Surface water management fees were lower than inflation.

2011 target: Increase surface water management fees at a rate commensurate or no more than inflation. There was a rate increase for 2011 from $111.00 per Single Family Residence (SFR) to $133.00 (SFR).

Influencing factors: Many factors drive changes to rates and fees, including increased regulatory requirements, storm events that induce flooding and other natural disasters, inflation, changes in the economy, additional development, demands for natural resource management services.

Strategy going forward: Making surface water activities more efficient while prioritizing how surface water revenues are spent will be important tasks for the Water and Land Resources Division over the next several years. This will be especially challenging in the coming years as increasing regulatory requirements will likely increase the cost of providing surface water services.

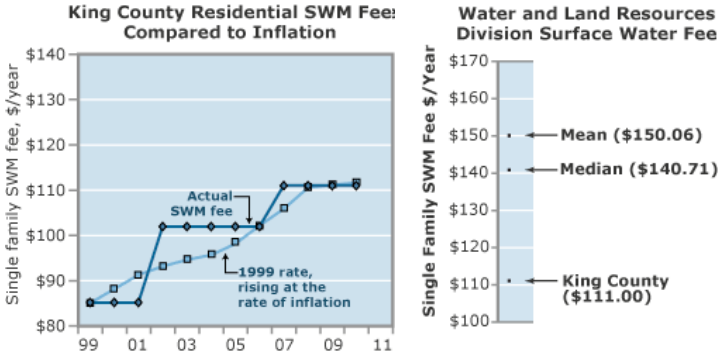
Surface water rate vs. comparable agencies

2010 Results: There was no rate increase for 2010 and King County's surface water management fees are less than both the average and the median of what other incorporated, cities and towns, in King County charge.

For 2011, there was a rate increase from $111.00 to $133.00 per Single Family Residence (SFR). The rate remains below the mean and median rates of comparable jurisdictions.

Influencing factors: King County offers one of the most robust surface water management programs in the region. As a large jurisdiction it is governed by Phase I of the National Pollutant Discharge Elimination System Permit by the State Department of Ecology to comply with the federal, Clean Water Act. Permit requirements this and for the next six years are more stringent as the state is grappling with declines in the health of its surface waters and the Puget Sound.

Strategy going forward: Much work is being done to determine how to comply with forthcoming regulatory requirements. Stormwater services will continue to make its operations more efficient.



Technical Notes

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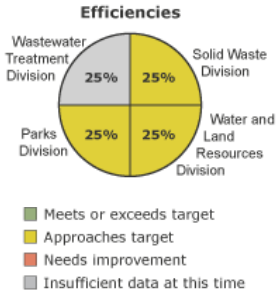
PERFORMANCE MEASURES

EFFICIENCY

2010 Rating:

Solid Waste Division (SWD)

Transfer transport and disposal operating costs per ton of solid waste.



About This Performance Measure: This measure represents all operating costs for the Solid Waste Division, including eight transfer stations and two drop boxes, transportation of solid waste from the transfer facilities to the Cedar Hills Landfill and operation of the Cedar Hills Landfill, per ton of solid waste.

2010 Results: $44.64

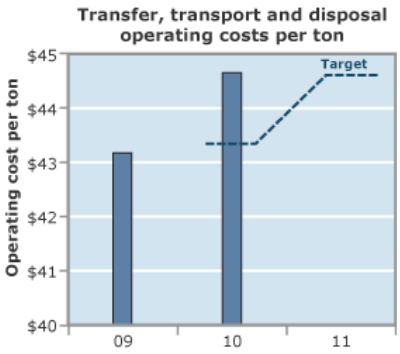
2010 Target: $43.31

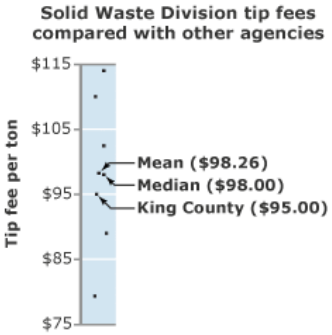
2011 Target: $44.63

Influencing Factors: The amount of solid waste entering the County's system fell by 4%. Operating costs of transfer, transport and disposal of the Solid Waste Division waste fell by .35%.

Strategy Going Forward: Management will continue to control operating costs, while assuring the safety of employees and customers at solid waste facilities.

Technical Notes: The 2010 and 2011 targets have been revised to reflect use of an alternative data source for tons of solid waste. The data used in 2009 was "Disposed Tons" and the data used in 2010 is "Grand Total — System." The latter includes yard waste, which the Solid Waste Division transports to or pays to have transported to and disposed at, a recycling facility. Dollars are adjusted for inflation.





Water and Land Resources Division (WLRD)

Efficiency Measures

About this measure: Water and Land Resources administers programs funded from over forty different sources, making it impossible to quantify a single all-encompassing efficiency measure. These two measures address efficiency within two key revenue sources — surface water management and the noxious weeds program.

Noxious Weeds

About this measure: Over the past two years, the Noxious Weeds Program has seen a reduction in the cost per unit area of noxious weed infestations controlled. This is because a larger area of noxious weeds has been kept under control. Noxious Weed Program expenditures / area of infestations controlled = cost per unit area infestations controlled

2008 results: 11.55 cents per square foot of noxious weeds area controlled

Related Information
About DNRP
DNRP Annual Report
GIS Center
About SWD
About WLR
Parks Business Plan

2009 results: 14 cents per square foot of noxious weeds area controlled

2009 target: 12 cents per square foot of noxious weeds area controlled

2010 target: 12 cents per square foot of noxious weed area controlled

Influencing factors: There are significant fixed costs associated with visiting each noxious weed infestation, regardless of size. KCNWCP visited a larger number of infestations relatively efficiently ($177.1 per site in 2009 compared to $184.4 in 2008 and the second lowest site efficiency figure since 2004). Due to effective control and surveying processes, in 2009, more numerous, smaller, dispersed and fragmented infestations were found. As a result the trend towards reduced costs per infestation was maintained, however the cost per unit area of weeds controlled increased in comparison to previous years.

Strategy going forward: The program will continue to focus on prevention and early detection / rapid response to avoid or further minimize the costs of controlling new infestations. The program will aim to increase levels of voluntary compliance and minimize the use of expensive regulatory mechanisms. Effective stakeholder communications, education and citizen reports of infestations have much potential to help the program further gain efficiencies by increasing active community participation in noxious weed control. In addition, the program will continue to pursue new, more cost-effective weed control technologies, including biological control.

Surface Water Management — Maintenance Cost per Facility:

About this measure: Maintaining surface water management facilities are one of the County's primary responsibilities funded by surface water fees. Costs used to calculate the efficiency of this activity include labor and mowing. Facility maintenance work is performed by King County's Roads Division in the Department of Transportation.

2009 Results: $1,255 per facility

2009 Target: $1,518 per facility

2010 Target: $1,334 per facility

2010 Results: $1,322 per facility

2011 Target: $1,225 per facility

Influencing factors: Severe rain events, annexations and availability of maintenance staff with the Roads Division at the Department of Transportation all influence cost of maintaining surface water management facilities. The alternative is contracting with vendors for this maintenance, which is more expensive. This measure does not account for differences in maintenance schedules and demands that vary by facility type, age and design.

In 2009, the cost did not meet target due to higher amounts of debris and sediment created by severe rain events in the winter of 2008/2009. For 2010, cost per facility was a better reflection of maintenance expenses due to less severe weather conditions.

Strategy going forward: Discussions will continue as to how a new measure or series of indexed measures could be developed to provide a more accurate picture of facility maintenance costs and efficiencies.

Parks Division

Ratio of employees to acres maintained

About this measure: This efficiency measure is a ratio of the number of acres in parks inventory maintained to the number of full-time employees in the Resource Section.

	FTEs	Acres	Acres to FTE
2008 Target	101	26,176	259
2008 Actual	96	25,703	268
2009 Target	96	26,500	276
2009 Actual	96	25,790	267
2010 Target	96	26,500	276
2011 Target	95	26,582	281

Influencing factors: A key policy direction, the division increased levels of FTEs within the division in 2008 to dramatically improve levels of maintenance, as promised to the voters in the passing of the 2008-2013 Parks Levy. Consequently, budget cuts have meant lower staffing levels than anticipated, while Parks inventory has steadily grown due to the annual addition of lands, which are funded by the Parks Expansion Levy, the CFT fund, and other sources. These factors have caused a notable increase in the efficiency measure.

Other factors help determine the quality and type of maintenance that Parks staff are able to perform for different types of facilities. Influencing factors include:

- Public and employee safety;
- Mandated requirements subject to potential fines if not performed (e.g. various required permits, sensitive areas protection, integrated pest management, drainage maintenance);
- Scheduled, revenue-generating use of park assets, including athletic fields, picnic shelters, and other event facilities, where revenue would be lost if maintenance action is not taken;
- High community expectations or high-visibility projects (e.g. heavily-used trail corridor, new athletic fields or backcountry trailhead);
- Storm damage and other natural event damage to the park system;
- Preserve and protect projects that prevent other damage (e.g. roof repairs, culvert replacement or field maintenance);
- Unscheduled public use (e.g. trail-use, drop-in athletic play, dog off-leash use).
- The economy's slow recovery continues to strain Parks funds.

Strategy going forward: Under the guidelines of the levy that expires at the end of 2013, Parks will undertake key acquisitions with very modest increases in staffing. This will further decrease the efficiency measure and further diminish the division's abilities to properly maintain the open space and natural lands in the division's inventory. The division will work to add maintenance staff in the remaining years of the levy in order to increase maintenance levels, as is financially prudent.

An acquisition strategy has been developed for identifying key properties for Parks that includes identification of funding to support the annual cost of maintenance. This type of pre-acquisition evaluation will avoid costly liabilities, such as environmental hazards (including mine shafts, methamphetamine labs, and noxious weed infestations), and recognize existing inappropriate public uses, which may require costly management.

By increasing volunteer efforts through Parks programs, such as Park Ambassadors, Adopt-a-Park, and Community Partnership Grants, and continuing our partnerships with agencies such as the Washington Trails Association and EarthCorps, we hope to improve our existing service levels and expand our reach for grants and other revenue sources for natural lands.

Wastewater Treatment Division (WTD)

Cost per pound of Biological Oxygen Demand (BOD) and Total Suspended Solids (TSS) removed

About this performance measure: WTD measures efficiency in terms of operating costs per pound of Biological Oxygen Demand (BOD) and Total Suspended Solids (TSS) removed during the treatment process. BOD and TSS are the primary pollutants that the treatment process is designed to remove, and these pollutants are directly monitored in the plants' water quality permits.

2008 Results: $0.3537

2008 Target: (adjusted for inflation) = $0.3365

Influencing factors: Steps taken through the productivity initiative have helped WTD achieve operational efficiencies represented by this measure.

Strategy going forward: WTD will continue to seek reductions in operating costs through its productivity initiative while maintaining high quality standards and service delivery.

Technical Notes

For definitions and more detail.

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PERFORMANCE MEASURES

CAPITAL INVESTMENT

2010 Rating: ⇔

About this measure: DNRP invests significant financial resources into system improvements of the natural and built environment. The Wastewater Treatment Division is focusing capital investments on increasing reliability and expanding capacity of the wastewater conveyance and treatment system. The Parks Division has been primarily steering capital investments toward improvements in the regional trail network. Solid Waste Division capital projects have been targeting transfer stations improvement, while the Water and Land Resource Division has been investing in habitat enhancements and protecting homes and businesses from flooding.

In 2008 all King County departments were given direction for tracking the rate for achieving capital project milestones. Summary information about capital project delivery is provided below, as well as maps showing the locations of capital investments over recent years.

Wastewater Treatment Division (WTD)

Capital investment summary

About this measure: WTD tracks accomplishment of scheduled major milestones for capital projects. In response to a county wide effort by the Office of Management and Budget (OMB) to track achievement of scheduled milestones for applicable CIP projects, WTD also reports this information to OMB twice a year. The milestones are the planned completion dates for planning, predesign, final design, implementation and close out of all capital projects.

2008 results: 71% of projects met their planned completion dates for major milestones in 2008.

2008 target: 75% of projects will meet the planned completion dates for major milestones

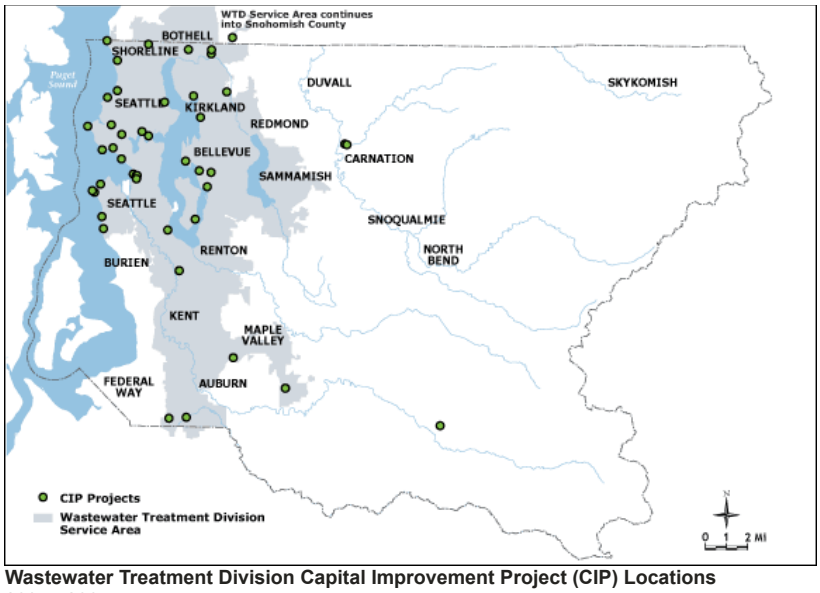
2009 target: 75% of projects will meet the planned completion dates for major milestones

Influencing factors: Scheduled project milestones entered into WTD's common project management database, Filemaker Pro, have been inconsistently maintained and updated by all project managers in the past. There have also been inconsistencies in the way individual project managers schedule milestone accomplishment dates. Therefore actual accomplishment dates for scheduled milestones have often not met the scheduled completion dates. New quarterly reporting requirements now prompt project managers to regularly check and update milestone schedules and log any reasons for schedule delays.

Strategy going forward: WTD is currently implementing a standardized project management approach based on Project Management International (PMI) standards. Increased accuracy in project scheduling is one of the key areas of focus in implementing these new project management standards. WTD project managers have taken training in PMI project management practices and will begin implementing these practices on their projects. This should result in higher accuracy in scheduling, and a higher accomplishment rate in meeting scheduled project milestones.

Related Information

- Brightwater Project
- Interactive Stormwater Projects Map
- Business Plan



Wastewater Treatment Division Capital Improvement Project (CIP) Locations
2005 - 2007
Click to download the PDF version.

Parks Division

Capital Investment Summary

About this measure: Parks capital investments in 2007 included rehabilitating aging bridge and trestle structures to ensure continued reliability, acquisition of new right-of-way to serve as future regional trail corridors, expanding existing trails to connect missing links to serve a greater number of users in the urban and rural areas.

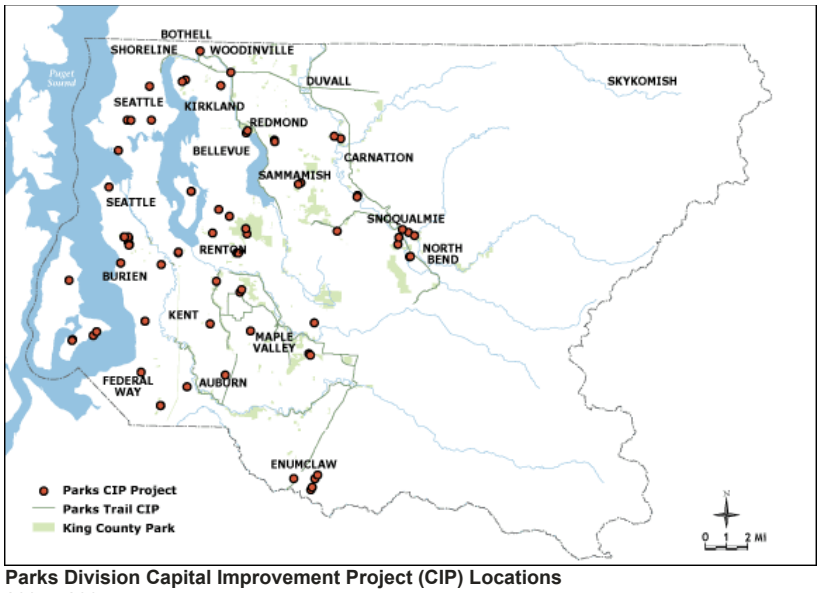
This measure tracks the degree that capital projects meet design and construction milestones

2007 results: 62.5 % of scheduling milestones met

2007 target: 75% of scheduling milestones met

Influencing factors: Challenges associated with property acquisition and permitting slowed the completion of several projects and had a significant effect on hitting project development milestones

Strategy going forward: The Parks Division, and Facilities Management Division staff who develop capital projects for the Parks Division, will continue to seek efficiencies in the design and construction process to improve the degree of capital development milestones met.



Parks Division Capital Improvement Project (CIP) Locations
2004 - 2007
Click to download the PDF version.

Solid Waste Division (SWD)

Percent of milestones achieved for Solid Waste Division capital projects

About this performance measure: This performance measure provides a snapshot of Capital Improvement Program (CIP) accomplishments. This is achieved by comparing actual expenditures for CIP projects reported in the King County Accounting Resources Management System (ARMS) with the projections for expenditures made at the beginning of the year. The target for this measure is for actual expenditures to be at least 75% of forecasted expenditures.

2010 Results: 68.5%

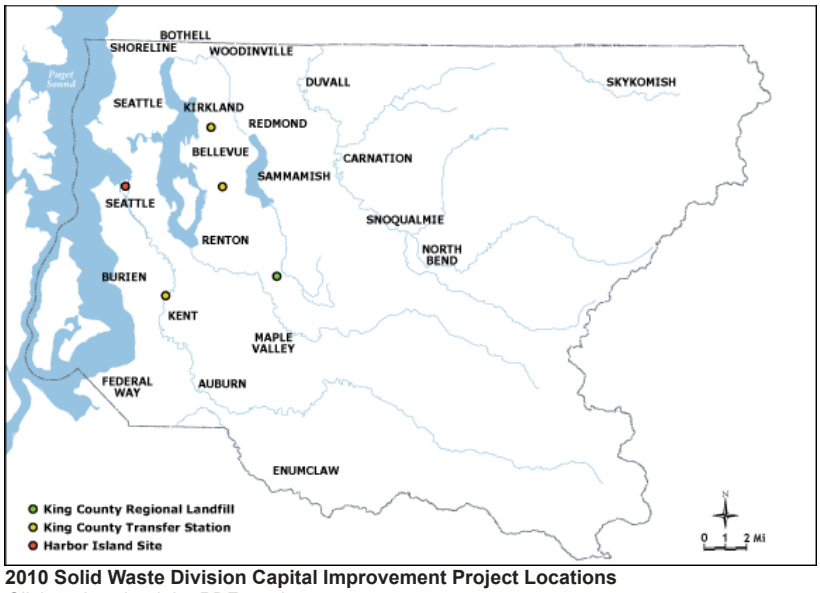
2010 Target: 75%

2011 Target: 75%

Influencing Factors: The main factor influencing the Construction Fund in 2010 was the site preparation for the construction of a new recycling and transfer station at Bow Lake. Significant work was also performed at the Houghton Transfer Station to raise and re-furbish the roof as well as to conduct other site improvements. Performance for the Landfill Reserve Fund in 2010 was driven by the phased closure of Area 6 and development of Area 7 at the Cedar Hills Regional Landfill, as well as work associated with the modification of the environmental control systems at Cedar Hills. Results for this measure are below the 2010 target due to the forecast for the Cedar Hills Area 7 development project mistakenly not being updated from the prior year. This caused the forecasted expenditures to be much higher than they would have been if the forecast had been updated. Additional quality assurance measures have been implemented to minimize the risk of future errors.

Strategy Going Forward: In 2011, the Division will continue to modernize the solid waste transfer system in preparation for the eventual closure of the Cedar Hills Regional Landfill. In 2011, the construction of the new Bow Lake Recycling and Transfer Station facility, which began in late 2010, will continue. Planning will continue for the construction of the new Factoria Transfer Station and is also expected to start for new transfer stations proposed for both Northeast and South King County. In addition, planning for the implementation of the revised Cedar Hills Development Plan will begin.

Technical Notes: As of December 31, 2010, using the un-updated Cedar Hills Area 7 development project forecast of $3.8M, the overall CIP program performed at 68.5% of forecasted expenditures. The Construction Fund forecast was $19.4M and expenditures through December were $14.4M, or 74.4% of forecast. The Landfill Reserve Fund forecast (which includes the Cedar Hills Area 7 development project) was $7.3M and actual expenditures were $3.8M, or 52.9% of forecast. The 68.5% program performance figure is the weighted average of the actual performance for both funds. Weighting is determined by dividing the total expenditures for both funds by the total forecasts for both funds. If the updated Cedar Hills Area 7 forecast had been used, the weighted results for this measure would have been 74.2%.



2010 Solid Waste Division Capital Improvement Project Locations
Click to download the PDF version.

Water and Land Resources Division (WLRD)

Capital Investment Summary Restoring and Protecting Waterways

Every year, between 25 and 30 percent of King County generated surface water management (SWM) fees are transferred to its capital program as part of the "pay-as-you-go" budget concept and to service the debt on SWM bonds. The SWM fees are used for constructing large and small projects to improve storm drainage, restore habitat and create or improve streams and wetlands. Capital funds are also used to leverage grants from other sources.

In 2010, we successfully constructed four large habitat restoration projects, thirteen small habitat projects, and initiated feasibility and preliminary design for several new projects. Key completions include Boise Creek Channel Restoration, the Piner Point Bulkhead Removal, and Des Moines Creek Channel Restoration Phase 3. The Boise Creek project involved relocating approximately 600 feet of Boise Creek from a channelized reach into a more natural alignment with access to its historic floodplain at the confluence with the White River. The project was completed despite the discovery of a large volume of creosote treated timbers during construction. The timbers, which required special handling and disposal, were determined to be remnants of an abandoned train trestle demolished and buried on the project site.

About this measure: Water and Land's capital project units complete work for many different clients both within and outside of King County government. In 2006, the WLRD managers developed a milestone measure to track its efficacy in planning for and meeting capital project goals. All projects include up to eight significant phases or milestones. This measure compares completed project milestone dates to planned completion dates to obtain a percentage of milestones accomplished on a quarterly and annual basis. Tracking of this measure helps management evaluate the success of the group at planning, managing, and completing projects. Monitoring on a quarterly basis allows managers to identify potential obstacles earlier and to minimize delays.

In 2009, the Capital Projects Section was divided into two separate units as part of a larger WLRD reorganization plan. Data reported for 2006 through 2008 represent project milestones of the combined section; data reported for 2009 and 2010 reflect the milestone accomplishments of the Ecological Services and Engineering Services Unit only.

2009 Target: Meet 70% of all project milestones

2009 results: met 71% (30 of 42) milestones. (8 of 12 milestones missed were delayed by lack of funding or at request of client)

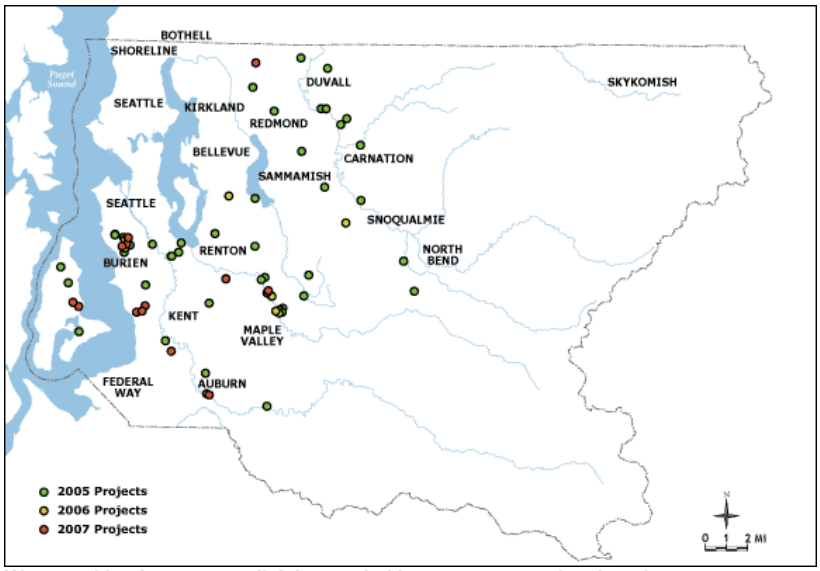
2010 Target: Meet 70% of all project milestones

2010 results: met 74% (102 of 137) of all planned milestones. (At least 6 of 9 milestones missed were delayed by lack of funding or at request of client)

Influencing factors: Milestone completion rates are influenced by many factors including availability of funding, unclear and/or inconsistent stakeholder goals, unforeseen site conditions, public opposition to a project, and/or changes in

regulatory requirements. In recent years, habitat CIP projects have also become more dependent on outside funding via grants and partnership agreements with outside agencies. Both increase the potential for delays as project teams wait for input or approvals from external partners and/or clients.

Strategy going forward: Section management tracks milestone completion to help identify and overcome obstacles and assure cost effective CIP implementation. When performance falls short of planned milestone targets, managers investigate the cause of delays, evaluate potential solutions and can take proactive steps to get the project back on course.



Water and land resources division capital improvement project locations
2005 - 2007
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PERFORMANCE MEASURES

ENTREPRENEURIAL REVENUE

2010 Rating: ⇧

About this measure: Since 2003, the Parks Division has been maximizing business revenues and exploring other actions that reduce the tax subsidy needed for active recreation facilities.

There are two elements to the Division's Business Revenues: **enterprise/entrepreneurial** revenues and **user fee** revenues. The Division defines enterprise/entrepreneurial revenues to include a myriad of non-traditional activities, ranging from corporate sponsorships and other creative promotions to special facility rentals (such as the Marymoor concert series, Cirque du Soleil, and yurts). These are generated largely as a result of cultivation efforts and partnerships established by the Division's staff. User fee revenues represent more traditional recreational activities, such as ballfield usage fees, and are generated according to what the market will bear.

This measure tracks the Division's success in reaching its goal, as established in the 2003 Parks Business Plan, of increasing entrepreneurial revenue 5% each year from an established baseline, adjusted for the transfer of high revenue, higher-cost facilities (principally pools).

2010 results
User fees: $2,208,000
Entrepreneurial/Enterprise: $2,495,000
Total: $4,703,000

2011 target
User fees: $2,113,000
Entrepreneurial/Enterprise: $2,701,000
Total: $4,814,000

Influencing factors:

- Overall, the Division's business revenues for 2010 were on target, but were slightly lower than in 2009 and remain below pre-recession levels. Since 2008, the economic downturn has affected the Division's success in pursuing business revenues.
- Business revenues have also been affected by the transfer of facilities, mostly pools, which generated more than $2 million in revenues in past years. Facilities transferred in the past three years include the Renton, Evergreen, and Vashon Island Pool, along with other Urban Growth Area (UGA) parks and facilities that transferred as a result of annexations.
- Enforcement of parking regulations at Marymoor Park continued the increased compliance which began in 2009 with issuing fines to violators of the $1 parking fee. Parking revenues are up another 29 percent in 2010 on top of the 13 percent from increased compliance in 2009, reversing the downward trend in parking revenues experienced over the preceding few years.
- 2010 saw the return of Cirque du Soleil for a successful run, bringing in similar revenues to their last appearance in 2008.
- The Division's fields and facilities (other than Marymoor) brought in 5 percent more revenue in 2010 than in 2009, with this slow but steady growth reflecting the fact that the Division's existing assets have largely been maximized. Preston Community Center and the campgrounds and picnic shelters at Tolt-MacDonald Park showed strong revenues and continue to be some of the Division's most sought-after facilities.

Strategy going forward: The Division anticipates that the challenging economic situation will continue to affect business revenues adversely in 2011, but remains focused on building diverse revenue streams that will lead to steady, sustainable funding in the long term.

Related Information

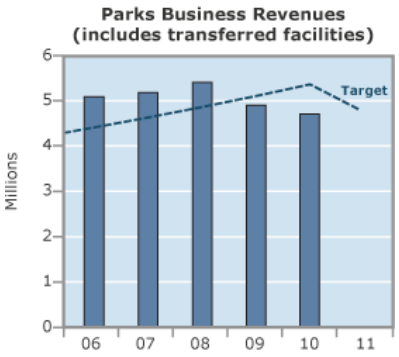
Parks & Recreation Partnerships

GIS Center Data Sales

Consistent with the Parks Business Plan and other plans guiding its operations, the Division has transferred local parks and recreation facilities and has transitioned to a system focused on providing regional parks, regional trails, and natural area parks including backcountry trails.

In 2004 more than one third of the Division's business revenue came from pools, local parks, and recreational facilities, which have since been transferred to cities and other jurisdictions. While these facilities generated considerable revenue, they cost significantly more to operate. As the chart above shows, the Division has successfully replaced the revenue from these transferred facilities and has increased business revenues by more than 5 percent each year when adjusted for the loss of these high-revenue, higher-cost facilities.

Aside from a few key properties, such as Marymoor Park, Preston Community Park and Athletic Fields, and the Weyerhaeuser King County Aquatic Center, the Division's current facilities offer a shrinking base of direct revenue generating assets. Although the Division remains committed to its innovative partnership and business-oriented approach, this situation will become increasingly challenging for the growth of business revenues in the future.



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